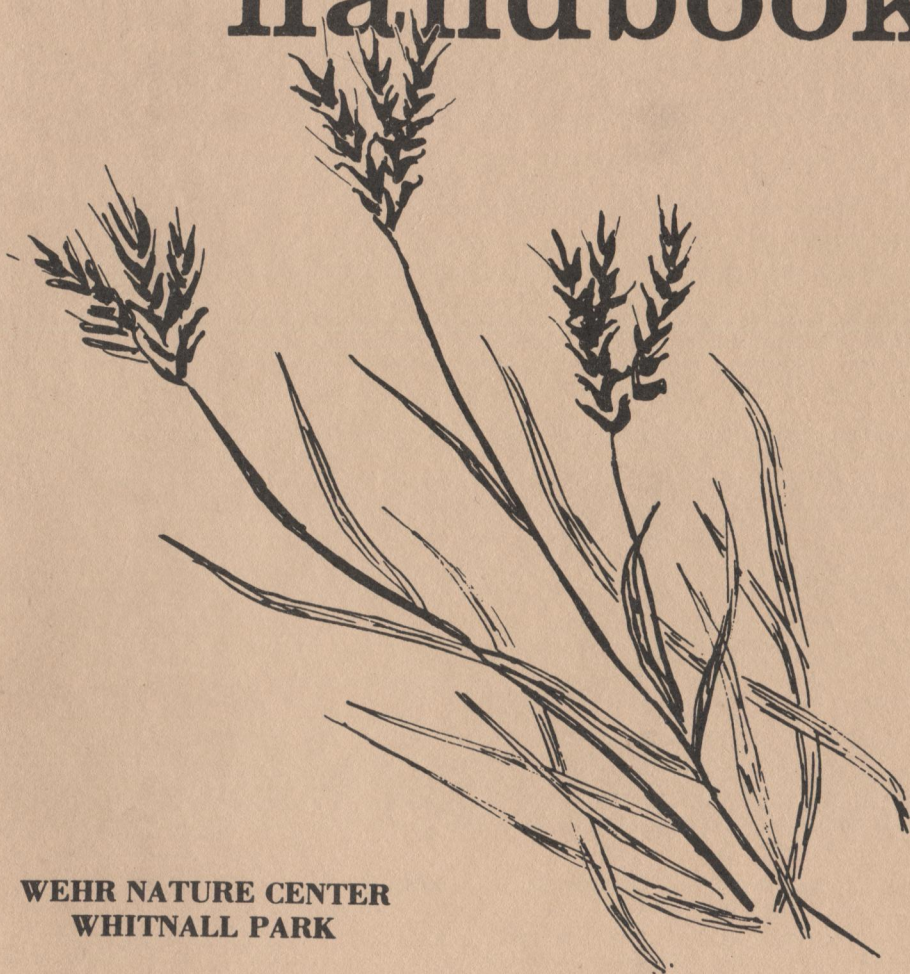


Prairie Propagation handbook



**WEHR NATURE CENTER
WHITNALL PARK**

PRAIRIE PROPAGATION HANDBOOK

Harold W. Rock
Naturalist

Sixth Edition

"This (a destroyed prairie remnant) is one little episode in the funeral of the native flora, which in turn is one episode in the funeral of the floras, of the world. Mechanized man, oblivious of floras, is proud of his progress in cleaning up the landscape on which, willy-nilly, he must live out his days."

ALDO LEOPOLD
A Sand County Almanac

WEHR NATURE CENTER
Whitnall Park

Milwaukee County
Department of Parks, Recreation and Culture

First Edition, 1971
 Second Edition, 1972
 Third Edition, 1974
 Fourth Edition, 1975
 Fifth Edition, 1977
 Sixth Edition, 1981

TABLE OF CONTENTS

Introduction	1
Propagation Methods	2
Summary of Prairie Planting Procedure	8
Calculating the Amount of Grass and Forb Seed Necessary for Planting	9
Five Prairie Segments	10
Succession	15
Prairie Plant Listing	16
Attractive Wild Flowers for the Prairie Garden	68
Plant and Seed Sources	71
Bibliography	73

ACKNOWLEDGEMENTS

Special thanks are extended to the following people for their helpful assistance in formulating this publication.

- Mr. Peter Jensen, Range Conservationist, Soil Conservation Service,
Lincoln, Nebraska
- Dr. Sotero Salac, Department of Ornamental Horticulture, University
of Nebraska, Lincoln, Nebraska
- Mr. Raymond Schulenberg, Morton Arboretum, Lisle, Illinois
- Mr. Gerald Schwarzmeier, Park & Planning Commission, County Courthouse,
Waukesha, Wisconsin
- Mr. Robert Smith, Wisconsin Department of Natural Resources,
Madison, Wisconsin
- Mr. Roger Troutman, Naturalist, Kingwood Center, Mansfield, Ohio
- Dr. Philip B. Whitford, Department of Botany, University of
Wisconsin-Milwaukee, Milwaukee, Wisconsin
- Dr. James H. Zimmerman, Naturalist, University of Wisconsin Arboretum,
Madison, Wisconsin

Special acknowledgement is given to John E. Voight, our Botanical Garden Director, who has constantly encouraged our educational activities in the natural areas of the park, to Art Ode, Assistant Superintendent of Parks, who first began the ten acre prairie restoration in Whitnall Park in 1965, and to Raymond Schulenberg of the Morton Arboretum and Jim Wilson of Wilson Seed Farm, both of whom contributed generously of their time, effort and knowledge.

"The scenery of the prairie is striking, and never fails to cause an exclamation of surprise. The extent of the prospect is exhilarating. The verdure and the flowers are beautiful, the absence of shade, and consequent appearance of light, produce a gaiety which animates the beholder. The whole of the surface of these beautiful plains is clad, throughout the season of verdure, with every imaginable variety of color, from grave to gay. It is impossible to conceive a more infinite diversity, or a richer profusion of hues or to detect the predominating tint, except the green, which forms the beautiful background, and relieves the exquisite brilliancy of all the others."--J. PLUMBE, JR., "Sketches of Iowa and Wisconsin," Annals of Iowa, 14 (1839).

PRAIRIE PROPAGATION HANDBOOK

INTRODUCTION

Purpose

This booklet is dedicated to those who are interested in growing prairie plants in their backyard as part of their landscape design and to those who may wish to grow them on a larger scale for historic, scientific or decorative reasons. Because much of our food and many of our flowering plants come from this grassland community, increasing numbers of gardeners, landscape architects, educators and engineers are realizing the potential of using the prairie as a natural area of utility and of beauty. Scientists are especially interested in maintaining scientific study areas in this plant community to discover more of the interactions that have made it the bread basket of much of the world. Hence, this booklet is presented for a variety of reasons and for a variety of people to assist them in maintaining and developing one of the most useful, beautiful and hardy communities of the world.

Dedication

To those who have contributed and to those who will be contributing to this handbook, we dedicate this compilation. We encourage you to continue to forward additions and corrections so that the booklet will be increasingly helpful to future prairie developers.

Explanations

The prairie plants listed on the following pages are those natives that are found in Wisconsin and northern Illinois, making a fairly complete list for planting purposes in our northeastern grassland border areas. Plants appearing sporadically and uncommon to the prairie are excluded. The plants that are starred (*) are the most common plants making up about 75% of the prairie.

The technical names are based on Fernald's Gray's Manual of Botany, Eighth Edition, with variations of these from Gleason's New Britton and Brown Illustrated Flora of N.E. United States and Adjacent Canada placed in brackets.

The common names are hopefully listed in order of most common use. A more sensible approach could use the Genus name and supplying any additional adjective from the interpretation of the Latin species name, thereby correlating the technical and common names and establishing a more consistent system.

The plant descriptions include the height of the plant, the color of the flowers and the season of bloom. Often there is a general description of the entire plant and, if possible, an evaluation of its attractiveness.

In describing the habitat the emphasis is on the amount of soil moisture and the type of soil on which the plant grows, but it also lists other communities where the plant may grow. The pH is listed in general terms, but plant associates are not listed and can be found in Swink's Plants of the Chicago Region.

The time of harvest of the seed is listed for most plants to help those who wish to gather their own seed supply from various prairie remnants. In some cases the dates are not known, and some dates could be more precisely determined.

PROPAGATION METHODS

The propagation methods include both the use of seed and vegetative techniques as explained below along with associated terms:

Method #1. The seeds are planted in flats in summer or fall shortly after being collected and are placed in a coldframe. The flats may remain in the coldframe or may be brought into the greenhouse in late winter or early spring, giving them an early start under controlled and more ideal conditions. The best temperature is close to 50° at night and no higher than 80° during the day. Method #1 is frequently applied to those seeds that quickly lose their viability or become dormant for a long period of time if dried out.

Seeds of legumes grow better when inoculated with the proper bacterial mixture to supply the necessary root bacteria for the production of nitrogen compounds so very valuable to the plants. Since legume bacteria are selective to a degree, one of the following widespread culture groups should be used for the inoculation of the proper legume: (1) alfalfa group, (2) clover group, (3) cowpea group, (4) bean group or (5) lupine group. (The widespread inoculants are sometimes designated by letters A, B, C, etc.) Plants that require very specific inoculants include Amorpha, Astragalus, Baptisia, Petalostemum, Tephrosia and Vicia americana. For general or specific information inquire of the Nitragin Co., Inc., 3101 W. Custer Avenue, Milwaukee, Wisconsin 53209.

The seedlings are thinned out after they have developed their first or second pair of true leaves (the first pair are seed leaves). The seedlings are planted singly or in clumps in wood-veneer plant bands or the more fragile but usable peat pots. The potted plants are usually well established and ready to be transplanted into the field in May. A few species require two years in flats. The entire pot is planted in order to avoid disturbance of the roots. To reduce the competition from the ever present weeds, the field is kept lightly turned over for some months before planting, preferably over a winter and for a full growing season. Shallow disking is advised since prairie plants need a firm soil.

This method has the advantage of requiring only small amounts of seeds, of guaranteeing the presence and desired distribution of the species and of giving the plants a head start over the weeds. Although the method can be ideal for small plots, it requires too much time and effort to be advisable for large areas. To have better distribution of the plants, this method could be combined with Method #2 in which the seed is sown directly on the field. The potted plants can be transplanted into the field before or after seeding and will not be damaged to any extent by a Nisbet drill or other equipment used at seeding time.

Method #2. The seeds are planted directly in the field in fall, usually in late October, before the ice, sleet and snow appear and at a time when there will be no germination of the prairie and weed seeds. Some use freshly cut prairie hay with their attached seed heads as a partial seeding technique as well as a mulch. To reduce weed competition, the field should be plowed for a number of months in advance as mentioned in Method #1. Deep plowing of 5 to 8 inches should be done several months previously, and the field should be allowed to settle to form a firm seed bed. Only harrowing or light disking is used to eliminate the weeds in preparation for seeding, permitting a firm seed bed to develop. For large areas the seed can be distributed very successfully by the Nisbet drill or John Deere rangeland drill, although hand techniques are often used. For small areas the seed is mixed with sand or vermiculite and distributed by hand. Either clean or chaffy seed can be used. The seed can be cleaned by using the proper size screens on which it is shaken and rubbed to remove the chaff. Many seeds are easily cleaned by crushing in a paper or cloth bag.

PROPAGATION METHODS (Cont.)

Method #2 (Cont.)

Because prairie seeds germinate slowly and late and because prairie plants often are slow growers above the ground in the first year, all kinds of weeds can get started and literally choke out the seedlings. Hand weeding the first two years will solve the problem, but in a large area the task is too gruelling. The best system is to plant a seed mixture of prairie plants which includes a cover crop that quickly fills the open areas but will gradually be replaced by the slower developing prairie species. A potentially good cover crop to sow with the prairie seed is Canadian wildrye, but others may be found that are as useful. To reduce the competition offered by the cover crop and by any weeds that develop, the field is mowed just above the developing prairie forbs in early summer and perhaps again in late summer. (Both Mr. Jensen and Mr. Wilson suggest planting prairie seeds in the standing litter of the previous year's grain or sorghum crop when in dry western rangeland. This is not advisable in wetter eastern areas if weeds are very aggressive.)

Method #3. The seeds are planted in flats in spring about April 1 and placed in the coldframe or the greenhouse. The flats are covered with paper until germination. The seedlings are handled as described in Method #1.

Seeds often need stratification in order to get good germination the first year. This is accomplished by placing them in moist sand, peat moss or sawdust at temperatures between 32° and 41° for 1 to 4 months. About 75% of the prairie species improved their germination by stratification. Many seeds can be stratified dry, eliminating the danger of seed germination in warm weather before they are planted. Over half the prairie seeds need only cold stratification. A few prairie seeds break their dormancy when exposed to light, and these seeds will germinate best when near the surface of the soil. About 15% of the seeds are not affected by stratification and about 14% are harmed by the process. (Selective stratification and scarification is suggested where time permits.) Most often the entire seed supply is stratified in moist sand or vermiculite in the refrigerator, cooler, coldframe or buried in containers in the ground. Below freezing temperatures apparently injure only a few species to some degree, but high temperatures after stratification can cause some seeds to lose their advantage of stratification. This can occur when seeds are planted in a field with soil temperatures above 70°F.

Legumes seem to germinate better when also scarified, a process in which the seed coat is weakened by scratching it with abrasives or by using hot water or chemicals. Hot water is a simple effective way, and rubbing seeds across a screen is helpful.

Method #4. The seeds are planted directly in the field in the spring, usually about June 10 to 30, to avoid the first rapid growth of weeds. The legume seeds are inoculated as previously mentioned, and all are stratified for 2 to 3 months in moist or dry sand or vermiculite. Again, the Nisbet or rangeland drill would be the best for planting larger areas. The weeds are much reduced if the field has been plowed the previous year and kept fallow by light disking as described under Method #2. One deep plowing in the previous fall is a good aid in keeping down the number of weeds. Before seeding, the field should be given a final harrowing or shallow disking, leaving a firm seed bed below the surface, as desired by prairie seeds. The seeds should be well mixed with sand or other coarse material and evenly applied at a rate of 40 to 60 live seeds per square foot or 30 to 80 lbs. per acre in our area, depending on the amount of live seed in the bulk. About 60% of the seed usually consists of grasses and 40% of herbaceous annuals and perennials, theoretically in proportions similar to remnant prairies in the area. The ratio of grass to forbs varies considerably in various parts of old prairies, and the 60:40 ratio is a convenient compromise. It should be raked in and pressed down if the equipment has not already done it.

Other Seed Methods. H.C. Greene and J.T. Curtis experimented with various seedling methods in the establishment of the University of Wisconsin prairies. Successful seeding techniques included:

1. Broadcasting seed on scarified open sod, such as Canada bluegrass and redbud, in the fall.

The sod was cut with a sharp rake but a scarifying machine could be used. The seed was pressed into the soil. Within five years there was a satisfactory stand of prairie species with the bluegrass and the redbud almost entirely suppressed.

2. Broadcasting on a disked surface in late fall.

The sod was thoroughly disked and seed was spread and dragged over. Good results were obtained within three to four years.

3. Spot planting on scarified soil.

A few square inches were scarified with a small hand cultivator, and the seeds were sown and pressed down. The technique was good for individual species, and they reached blooming size in a few years. A modification of this technique was the leveling and planting of animal disturbed areas in the same manner.

4. Broadcasting on undisturbed sandy soil where there are many open spaces and little competition.

This technique was very successful for Indiangrass, big bluestem, little bluestem and certain forbs that readily grow in sandy soils. Fall planted areas produced flowering plants within three to four years.

5. Broadcasting small-seeded species on closed sod of the moist-mesic habitats in the fall of the year.

Large-seeded species cannot be grown successfully by this technique, but small-seeded species matured in two to three years. Surprisingly, Greene and Curtis successfully grew scarlet painted cup, fringed gentian, stiff gentian and bottled gentian on undisturbed soil which was moist, black and sandy. Although a heavy cover of sedges and grasses existed, the plants developed in large numbers and bloomed freely despite the apparent competition.

Mr. Peter Jensen, Range Conservationist with the United States Dept. of Agriculture in Lincoln, Nebraska submitted the following information offering his comments on planting methods.

"I would suggest the John Deere rangeland drill, as modified by the Miller Seed Co., Lincoln, Nebraska, be included with the Nisbet grass drill as a suitable drill to plant grass and forb seeds. Matter of fact, many of the soil and water conservation districts and seeding contractors prefer the John Deere drill. The major difference between the two are the Nisbet drill has a picker wheel in the large box for the fluffy seeds (bluestems, indiangrass, blue grama, etc.) and a brush wheel for the fine seeds (switchgrass, lovegrass, legumes, etc.). The John Deere uses a gravity feed for the fluffy seeds and fluted feed for the fine seeds.

Other Seed Methods (Cont.)

It has been our experience, when seeding native grasses and presumably forbs in field seedings, the best type of cover crop would be a dead standing litter cover that had been planted the growing season prior to planting the grass or forb seed. The SCS (Soil Conservation Service) has been planting grass for over 30 years on millions of acres in the Great Plains States and has found the best type of cover would be a grain (milo) or forage (cane) sorghum cover. This type of cover protects the ground surface from blowing, keeps a moist top layer of soil for the longest period, keeps crusting to a minimum, provides shade for the seedling and keeps sheet water erosion to a minimum.

The preparatory cover crop should be handled in the following manner:

1. In a well prepared seedbed, the sorghum should be drilled (solid) at the locally approved rate and time.
2. If it appears the grain crop would mature or there would be too much hay from the forage sorghum crop, it should be clipped or removed leaving a 12 to 18 inch stubble height. The sorghum seeding date can be delayed to reduce or eliminate the problem. When the cover crop is planted in close-drilled rows, it is very effective in controlling weeds. In general, the wider the row on the cover crop, the more the weeds.

As mentioned before, there have been several million acres of crop land planted to native grasses in the Great Plains States. When using the right cover crop, seed drill, seed mixtures (rates and kinds) and weed control during stand establishment, there are no failures.

Regarding weed control, I would also suggest the use of the rotary mower over the sickle bar type. The rotary will shred the weed cover and disseminate it over the area, thus reducing the chance of smothering the planted grass or forb seedling.

If the grass or forb planting is made in a clean-tilled seedbed, I would strongly recommend the field or area be firmly packed with a cultipacker to firm up the seedbed. The firmer the seedbed, the quicker the grass-forb stand establishment.

It has been my experience and supported by research, the best seeding date for warm-season grasses would be in the spring (optimum mid-March to mid-May)." (Mr. Jim Wilson agrees heartily with Mr. Jensen on this advice for western rangelands but warns that it "will not work on 90% of the sites in prairie states and Corn Belt, where the main hazard is competition of the grassy weeds." He further warns that in this wetter area anyone would be doomed to failure if he planted before mid-May. "The best way to get a good stand in the high rainfall, weed infested middle west and eastern states is to work the ground shallow three or four times through spring to sprout and kill weeds and plant after June 15th.")

Landscape architect David Kropp of Winfield, Illinois, in the magazine Grounds Maintenance dated September, 1971, has described the use of prairie plantings in his restoration projects for residential and commercial sites. His procedure involves (1) shallow plowing as early as possible with repetition at least one more time in 3 or 4 weeks to destroy new germinating weeds; (2) After the final disking the area is immediately seeded. The grass mixture is varied according to the average amount of soil moisture available during the growing season; (3) When the weeds shade about 70% of the area, the plot is mowed with a rotary shredder

Other Seed Methods (Cont.)

above the growing tips of the developing prairie plants. The weeds are mowed back 2 or 3 times the first growth season; (4) The prairie is maintained in following years by fire, the best time for this area being from mid-March to the beginning of April and (5) A winding gravel path is constructed through larger prairie plots for pedestrians and to act as a fire break.

Mr. Kropp has three purposes in using prairies as features in landscape planning:

1. Preserving the native vegetation.
2. Providing an esthetically pleasing plant community with rich textures, colors and plant forms.
3. Providing for easy maintenance."

He finds that prairie plantings "eliminate expensive watering, fertilizing, weeding and cutting operations after the first two growing seasons."

Vegetative Reproduction. Vegetative methods of reproduction are often quick and effective ways of developing new plants without destroying the parent plants or using the slower seed process. However, a great deal of time and effort must be expended. In the process of division, the entire plant or a section of it is divided into pieces, each of which has both roots and stem. Plants with rhizomes and those with spreading root systems are natural dividers. Those which lack such root systems must be cut carefully so that the separated pieces will have enough roots to permit development. Weak pieces can be encouraged to grow if placed in a mixture of sand and peat moss and kept moist. In making cuttings, pieces of roots or stems or leaves are used and are forced to produce their own roots and eventually their own stems and leaves. Often root hormones are used to stimulate more rapid root growth. Constant warmth and moisture above and below the surface of the cutting will stimulate development. Cuttings are made at various times, depending on the species, and vary in the ease with which they root. Some must be put under glass, as in a greenhouse, or under a plastic hood or in a hotbed in order to develop. A box partially sunk in the ground and covered with plastic or glass is very effective. Layering involves the rooting of a portion of the stem while still a part of the plant, and then separating it to form an independent plant. A notch or slit is often cut into the underside of the stem, and the stem is anchored on the ground near this point with a wire or stone and covered with soil.

Fungi can attack seeds, seedlings and cuttings at ground level, often causing failure known as damping off. To avoid this problem, the soil and seed flats can be sterilized by heat or by use of a fungicide. Cuttings and seedlings can be sprayed weekly until more mature.

Weed Control

Because prairie plants are natives, most of them are relatively easy to grow by various methods, but the real problem in the midwest is to control the weeds which readily choke out the young plants. (The seeds, roots, and rhizomes of weeds are frequently present in large numbers in old fields and quickly sprout when the fields are opened by plowing.) Since the developing prairie plants are usually slow growers above the ground and usually start late in the spring,

Weed Control (Cont.)

the weeds have a distinct advantage in the first two years. Some of the techniques used to control the weeds include: (1) keeping the field plowed and fallow for a few months to several years before planting, (2) one last deep plowing 5 to 8 inches deep in early summer for fall planting or in autumn for late spring planting followed by several shallow tillings, (3) using a cover crop which fills the open spaces but will yield to the developing prairie plants, (4) cutting, or preferably shredding, the weeds and cover crop once or twice the first summer to reduce their competition but not injuring the young prairie shoots, (5) hand weeding the first year and early in the second year, (6) sterilizing the soil of smaller plots, but this can affect soil bacteria, (7) planting in the litter of the previous season's grain or forage sorghum or soybean crop (in larger areas and areas in danger of erosion, technique #7 would be very useful if weeds are not prominent in the field) and (8) chemical control, a method in need of more long term research on the total effect on the prairie and surrounding communities.

Use of Fire

At the end of the second year of growth, fire may be used to reduce the number of invaders and the woody plants. The most effective time to burn the prairie is in early spring about the last week in March to the second week in April. Burning also seems to stimulate most of the prairie plants as well as some of the dormant seeds that may be present. After the first burn, the prairie is aided by burning once every 2 to 3 years. If there is not enough combustible material for a good burn, bales of straw may be spread about before burning. Spring burning can injure early blooming prairie plants and may stimulate the growth of sweet clover and Queen Anne's Lace in a young prairie, but it is far more helpful than harmful.

Ecotypes

Ecologists often advise the use of local seed and plant strains (closest ecotypes) to avoid possible loss or hybridizing of native ecotypes that have developed over many centuries and may have significant characteristics not yet understood. Also, there is the fear that the more vigorous southern strains may actually crowd out the local forbs and grasses, reducing the number and varieties in an abnormal manner.

Mr. Jim Wilson expresses a different view based on his extensive experience in developing and using more southerly strains of grasses in northern latitudes. The improved southern varieties that he has developed, researched or observed have proven to be more vigorous, more tolerant and more effective in competing with foreign weeds in areas up to 300 miles northward from their original sties. In regard to this "ecotype problem" he states: "In complete prairie reconstruction the question is which type of competition is worse for forbs and minor grasses--the vigorous, long-season major grass varieties from farther south or the annual weeds and introduced cool-season grasses which crowd into an area planted with less competitive local strains? No one has yet had enough experience to answer this question." However, he strongly discourages the introduction of new ecotypes into old prairies that have established themselves in order to preserve the local ecotypes for future reference. He points out that experts do not agree on how quickly introduced ecotypes change when placed in a new environment, but he strongly suspects that they actually invigorate the community and eventually will adjust to other plants to form a similar but higher quality prairie.

SUMMARY OF PRAIRIE PLANTING PROCEDURE

(for spring*)

1. As soon as is possible, disk or till to a shallow depth. (Leave a very firm base.) Deep plowing before winter is desirable. Deep plowing is desirable only if invasive weedy plants are a possible nuisance. After deep plowing and before seeding, the soil must have a chance to settle into a firm base.
2. When the weeds and weed seeds start developing, again till to a shallow depth.
3. Repeat the shallow tilling at least once before planting, preferably several times at three week intervals or weed competition may occur.
4. In May or June (can be later), sow the native grass seed mixed with the forb (flowering herb) seed immediately after the last tilling. The mixture can include equal parts of Big Bluestem, Little Bluestem, Green Needlegrass, Side-Oats Gramma, Indiangrass and Switchgrass, or a grass mixture to fit the moisture gradient or other preferred condition. Annual or perennial rye grass can be added in small amounts to reduce erosion. Ideally, a Nisbet drill or other rangeland drill could be used but if it is unavailable, a hopper type can be substituted, such as a larger Cyclone spreader that throws seed to each side as it is pulled by a jeep or tractor. In smaller areas hand seeding or small hopper spreaders can be used, but take a trial run before using a technique. Spread about 40 to 80 lb./ft.^{2**} of seed mixture which can be diluted with dry, coarse sand or other dry material. Some use milorganite or soil as a dilutant, but fertilizer does stimulate weed growth. Repeated seeding over the same area (preferably in different directions) until the proper amount is spread helps to give better distribution. (Rolling in the seed helps.) Seeds should only be lightly covered with soil.
5. When the weeds reach over 6 inches in height, mow to the six inch height (no lower), preferably with a rotary mower that reduces the debris to small pieces. This mowing may be needed twice the first year depending on the amount of weeds. Mow the second summer only if the weeds are extremely prominent.
6. Burn about every 2 to 3 years to reduce the accumulated debris and discourage undesirable plants. If burning is not permitted, it can be mowed each spring (or fall) before much growth has occurred. Once established, prairie areas need no care except to discourage invasion by woody plants and encouraging healthy plant growth through a burning technique.

* Prairies can be planted in fall in late October or November after the plant growth has stopped. More care should be taken to prevent erosion by mulching, strip planting or seeding among previously grown grains. Weeds may need controlling the first year. In the North, fall planting gives poor results with grass seed in some winters.

** Live seeds per square foot.

CALCULATING THE AMOUNT OF GRASS AND FORB SEED NECESSARY FOR PLANTING

To calculate the amount of grass and forb seed necessary to plant your plot, use the following figures based on a one acre area:

10 lbs. bulk grass seed yields about 30 live seeds (ls) per sq. ft. spread over 1 acre.

15 lbs. bulk grass seed yields about 45 live seeds (ls) per sq. ft. spread over 1 acre.

20 lbs. bulk grass seed yields about 60 to 70 live seeds (ls) per sq. ft. spread over 1 acre.

Thirty to eighty live seeds per sq. ft. have been recommended, with the preference being toward the sparser side to give space for the slowly developing forbs. To this mixture you may wish to add a cover grass to reduce weeds or prevent erosion until the native plants become established. Use perennial rye or oats or others at a rate of 1 peck (2 lbs.) per acre or less.

The forb (flowering herb) seed can be added at a rate anywhere from none to many times the rate of the grass seed depending on what you prefer to have. A blend of 30% grass seed and 70% forb seed is a good combination, although many prairie developers are not able to get enough forb seed to use this proportion. Beware of seeding too heavily with the more permanent (climax) grasses such as Big Bluestem, Indiangrass and Switchgrass which may prevent the development of the forbs. Since forbs could be crowded out of a mixed prairie planting in later years by the tall native grasses, we prefer a sparse grass prairie in its early stages.

For your purposes, the mixture given below can be very satisfactory:

Grass Seed Mixture 5-10 lbs./acre
Big Bluestem, Little Bluestem, Switchgrass, bulk weight
Indiangrass, Green Needlegrass, Sideoats
Gramma (Dropseed and Junegrass seed if available)

Cover Grass Seed 1-2 lbs./acre
Perennial or Wild Rye or Oats bulk weight

Forb Seed Mixture 10-20 lbs./acre
bulk weight

Since forb seed is expensive, individuals may collect it from remnant prairies or such places as along railroad tracks, highways and fences.

FIVE PRAIRIE SEGMENTS¹

(based on the amount of moisture available)

For convenience, the prairie is divided into five segments based on the amount of moisture in the soil and includes:

1. Wet Prairie (has more water than rainfall--water runs on).
Common to East and South; has many eastern coastal and forest meadow species.
- ↓
2. Wet-Mesic Prairie.
- ↓
3. Mesic Prairie (water soaks in--no runoff or runoff).
- ↓
4. Mesic-Dry Prairie.
- ↓
5. Dry Prairie (less water than rainfall--water runs off).
Species common to and almost identical to the western prairies.

This gradient is evident in going from the West to the East across the grasslands of the U.S. Such a gradient can exist in the Midwest on a slope that extends from dry upland to wet lowland, as a gravelly glacial slope.

The indicator species (marked *) of each segment are those plants that have clear-cut peaks of optimum growth within their segment although they may be found in other segments as well. Some very common species are excluded as indicators because they grow profusely in several segments. The indicators reveal the soil moisture condition of an area, and, therefore, they are used to identify a prairie segment and also to determine what prairie species should be placed in a developing prairie of a certain moisture content.

Listed with the indicator species are additional prairie species that are quite common to the segment and a few that are an attractive part of the prairie even though not common. The total species listed for each segment constitutes about 70-90% of the vegetation of the native prairie area.

1. Wet Prairie

- | | |
|---|---|
| Allium canadense (Wild Garlic) | Dryopteris thelypteris (Marginal Fern) |
| Andropogon gerardi (Big Bluestem Grass) | Equisetum arvense (Common Horsetail) |
| Anemone canadensis (Canada Anemone) | Erigeron strigosus (Daisy Fleabane) |
| Apocynum cannabinum (Indian Hemp) | Eupatorium perfoliatum (Boneset) |
| Asclepias syriaca (Common Milkweed) | Fragaria virginiana (Wild Strawberry) |
| *Aster novae-angliae (New England Aster) | Galium boreale (Northern Bedstraw) |
| Aster simplex (Panicled Aster) | Galium obtusum (Meadow Bedstraw) |
| *Calamagrostis canadensis (Bluejoint Grass) | Galium tinctorium (Dye Bedstraw) |
| Camassia scilloides (Wild Hyacinth) | Gentiana andrewsii (Bottled Gentian) |
| Comandra richardsoniana (False Toadflax) | Habenaria leucophaea (White Fringed Orchid) |
| Desmodium canadense (Canada Tick-trefoil) | Helianthus grosseserratus (Saw-tooth Sunflower) |
| Dodecatheon meadia (Midland Shootingstar) | Houstonia caerulea (Bluets) |

¹Based on Curtis, John T., The Vegetation of Wisconsin and Weaver, J.E., North American Prairie.

1. Wet Prairie (Cont.)

- | | |
|---|---|
| Heuchera richardsonii (Midland Alumroot) | Phlox pilosa (Downy Phlox) |
| *Hypoxis hirsuta (Yelloweyed Grass) | *Pycnanthemum virginianum (Common Mt. Mint) |
| Iris shrevei (Wild Blueflag) | Ratibida pinnata (Grayheaded Coneflower) |
| Lathyrus palustris (Marsh Vetchling) | Rudbeckia hirta (Blackeyed Susan) |
| *Liatris pycnostachya (Prairie Blazingstar) | Salix humilis (Prairie Willow) |
| Liatris spicata (Spike Blazingstar) | Saxifraga pensylvanica (Swamp Saxifrage) |
| Lilium michiganense (Western Turkscap Lily) | Solidago gigantea (Late Goldenrod) |
| Lobelia spicata (Pale Lobelia) | Solidago riddellii (Riddell's Goldenrod) |
| Lysimachia quadriflora (Narrowleaf Loosestrife) | *Spartina pectinata (Prairie Cordgrass) |
| Monarda fistulosa (Wild Bergamot) | Spirea alba (Meadowsweet) |
| Oenothera pilosella (Prairie Sundrops) | *Thalictrum dasycarpum (Purple Meadowrue) |
| O. perennis (Small Sundrops) | Tradescantia ohiensis (Common Spiderwort) |
| *Oxypolis rigidior (Cowbane) | *Veronicastrum virginicum (Culversroot) |
| Pedicularis canadensis (Wood Betony) | Viola cucullata (Blue Marsh Violet) |
| | Zizia aurea (Golden Alexanders) |

2. Wet-Mesic Prairie

- | | |
|---|--|
| Allium canadense (Wild Garlic) | Euphorbia corollata (Flowering Spurge) |
| Allium cernuum (Nodding Wild Onion) | *Fragaria virginiana (Wild Strawberry) |
| Amorpha canescens (Leadplant) | *Galium boreale (Northern Bedstraw) |
| Andropogon gerardi (Big Bluestem Grass) | Gentiana andrewsii (Bottled Gentian) |
| A. scoparium (Little Bluestem Grass) | Gentiana crinata (Fringed Gentian) |
| Anemone canadensis (Canada Anemone) | Geranium maculatum (Wild Geranium) |
| Asclepias syriaca (Common Milkweed) | Habenaria leucophaea (White Fringed Orchid) |
| Aster azureus (Azure Aster) | *Helianthus grosseserratus (Saw-tooth Sunflower) |
| Aster ericoides (Heath Aster) | Helianthus laetiflorus (Rigid Sunflower) |
| Aster laevis (Smooth Aster) | *Heuchera richardsonii (Midland Alumroot) |
| Aster novae-angliae (New England Aster) | Lactuca canadensis (Canada Wild Lettuce) |
| Baptisia leucantha (Cream False Indigo) | Lathyrus palustris (Marsh Vetchling) |
| Blephilia ciliata (Downy Wood Mint) | *L. Venosus (Showy Vetchling) |
| Cacalia tuberosa (Tuberous Indian Plantain) | Lespedeza capitata (Roundheaded Bush Clover) |
| Camassia scilloides (Wild Hyacinth) | Liatris pycnostachya (Prairie Blazingstar) |
| Calamagrostis canadensis (Bluejoint Grass) | Lilium michiganense (Western Turkscap Lily) |
| Cicuta maculata (Spotted Cowbane) | Lithospermum canescens (Hoary Puccoon) |
| Cirsium discolor (Pasture Thistle) | Monarda fistulosa (Wild Bergamot) |
| Comandra richardsoniana (False Toadflax) | *Panicum leibergii (Prairie Panic Grass) |
| *Desmodium canadense (Canada Tick-trefoil) | *Phlox pilosa (Downy Phlox) |
| Dodecatheon meadia (Midland Shootingstar) | Polytaenia nuttallii (Prairie Parsley) |
| Elymus canadensis (Canada Wildrye) | Prenanthes racemosa (Smooth White Rattlesnakeroot) |
| Equisetum arvense (Common Horsetail) | Pycnanthemum virginianum (Common Mt. Mint) |
| E. laevigatum (Kansas Scouringrush) | Ratibida pinnata (Grayheaded Coneflower) |
| | Rhus glabra (Smooth Sumac) |
| | Rosa sp. (Prairie Roses) |
| | *Rudbeckia hirta (Blackeyed Susan) |
| | R. subtomentosa (Sweet Coneflower) |

2. Wet-Mesic Prairie (Cont.)

Salix humilis (Prairie Willow)
 **Silphium integrifolium* (Wholeleaf Rosinweed)
S. terebinthinaceum (Prairie Dock)
Smilacina stellata (Starry False Solomonseal)
Solidago gigantea (Late Goldenrod)
S. graminifolia (Grassleaf Goldenrod)
S. rigida (Stiff Goldenrod)
Sorghastrum nutans (Indiangrass)

3. Mesic Prairie

Allium cernuum (Nodding Wild Onion)
Amorpha canescens (Leadplant)
Andropogon gerardi (Big Bluestem Grass)
A. scoparius (Little Bluestem Grass)
Anemone cylindrica (Prairie Thimbleweed)
Antennaria neglecta (Pussytoes)
Apocynum androsaemifolium (Spreading Dogbane)
A. cannabinum (Indian Hemp)
Asclepias sullivanti (Sullivant's Milkweed)
A. syriaca (Common Milkweed)
A. tuberosa (Butterflyweed)
Aster azureus (Azure Aster)
A. ericoides (Heath Aster)
 **A. laevis* (Smooth Aster)
A. novae-angliae (New England Aster)
Baptisia leucantha (White False Indigo)
B. leucophaea (Cream False Indigo)
Bromus kalmii (Prairie Brome Grass)
Carex bicknelli (Bicknell's Sedge)
C. meadii (Mead's Sedge)
Castilleja coccinea (Scarlet Painted Cup)
 **Ceanothus americanus* (New Jersey Tea)
 **Cirsium discolor* (Pasture Thistle)
C. hillii (Hill's Thistle)
Comandra richardsoniana (False Toadflax)
 **Convolvulus sepium* (Wild Morning Glory)
Coreopsis palmata (Prairie Coreopsis)
C. tripteris (Tall Coreopsis)
Desmodium canadense (Canada Tick-trefoil)
 **D. illinoense* (Illinois Tick-trefoil)
Dodecatheon meadii (Midland Shootingstar)
Echinacea pallida (Pale Purple Coneflower)
Elymus canadensis (Canadian Wildrye)

Spartina pectinata (Prairie Cordgrass)
Spirea alba (Meadowsweet)
Sporobolus heterolepis (Prairie Dropseed)
Thalictrum dasycarpum (Purple Meadowrue)
Tradescantia ohiensis (Common Spiderwort)
Spiranthes cernua (Nodding Ladiestresses)
Vernonia fasciculata (Common Ironweed)
Veronicastrum virginicum (Culversroot)
Vicia americana (American Vetch)
Zizia aurea (Golden Alexanders)

**Eryngium yuccifolium* (Rattlesnake Master)
Euphorbia corollata (Flowering Spurge)
Fragaria virginiana (Wild Strawberry)
Galium boreale (Northern Bedstraw)
Gentiana puberula (Downy Gentian)
Helianthus grosseserratus (Sawtooth Sunflower)
H. laetiflorus (Rigid Sunflower)
H. occidentalis (Western Sunflower)
Heliopsis helianthoides (Oxeye)
Heuchera richardsonii (Midland Alumroot)
Hypoxis hirsuta (Yelloweyed Grass)
Krigia biflora (False Dandelion)
Lactuca canadensis (Canada Wild Lettuce)
Lathyrus venosus (Showy Vetchling)
Lespedeza capitata (Roundheaded Bush Clover)
 **Liatris aspera* (Rough Blazingstar)
L. ligulastylis (Rocky Mountain Blazingstar)
L. pycnostachys (Prairie Blazingstar)
L. spicata (Spike Blazingstar)
Lilium philadelphicus (Wood Lily)
Lithospermum canescens (Hoary Puccoon)
Lobelia spicata (Pale Lobelia)
Monarda fistulosa (Wild Bergamot)
Oxalis violacea (Violet Wood Sorrell)
Panicum leibergii (Prairie Panic Grass)
P. oligosanthos (Scribner Panic Grass)
P. virgatum (Switchgrass)
Parthenium integrifolium (Wild Quinine)
Pedicularis canadensis (Wood Betony)
Penstemon digitalis (Smooth Penstemon)
Petalostemum candidum (White Prairie Clover)
P. purpureum (Purple Prairie Clover)
Phlox pilosa (Downy Phlox)
Physostegia virginiana (False Dragonhead)
Polygala senega (Seneca Snakeroot)
Polytaenia nutallii (Prairie Parsley)
Potentilla arguta (Prairie Cinquefoil)

3. Mesic Prairie (Cont.)

Pycnanthemum virginianum (Common Mt. Mint)
 **Ratibida pinnata* (Grayheaded Coneflower)
Rhus glabra (Smooth Sumac)
Rosa sp. (Prairie Roses)
Rudbeckia hirta (Blackeyed Susan)
R. subtomentosa (Sweet Clover)
Salix humilis (Prairie Willow)
Silphium integrifolium (Wholeleaf Rosinweed)
S. laciniatum (Compassplant)
S. terebinthinaceum (Prairiedock)
Sisyrinchium albidum (Common Blue-eyed Grass)
Smilacina stellata (Starry False Solomonseal)

4. Dry-Mesic Prairie

Amorpha canescens (Leadplant)
Andropogon gerardi (Big Bluestem Grass)
A. scoparius (Little Bluestem Grass)
 **Anemone cylindrica* (Prairie Thimbleweed)
A. patens (Pasqueflower)
Antennaria neglecta (Pussytoes)
Artemisia caudata (Beach Wormwood)
Artemisia ludoviciana (Louisiana Wormwood)
Asclepias syriaca (Common Milkweed)
A. tuberosa (Butterflyweed)
 **A. verticillata* (Whorled Milkweed)
Aster azureus (Azure Aster)
A. ericoides (Heath Aster)
A. laevis (Smooth Aster)
A. oblongifolius (Aromatic Aster)
A. ptarmicoides (White Upland Aster)
A. sericeus (Western Silvery Aster)
Bouteloua curtipendula (Sideoats Grama Grass)
Cirsium hillii (Hill's Thistle)
Comandra richardsoniana (False Toadflax)
Coreopsis palmata (Prairie Coreopsis)
Delphinium virescens
Erigeron strigosus (Daisy Fleabane)
Euphorbia corollata (Flowering Spurge)
Gentiana quinquefolia (Stiff Gentian)
Hedeoma hispida (Mock Pennyroyal)
Helianthus laetiflorus (Rigid Sunflower)
H. occidentalis (Western Sunflower)
 **Koeleria cristata* (Junegrass)

**Solidago missouriensis* (Missouri Goldenrod)
S. rigida (Stiff Goldenrod)
S. speciosa (Showy Goldenrod)
Sorghastrum nutans (Indiangrass)
Sporobolus heterolepis (Prairie Dropseed)
Stipa spartea (Needlegrass)
Tradescantia ohiensis (Common Spiderwort)
Veronicastrum virginicum (Culversroot)
Vicia americana (American Vetch)
Viola pedatifida (Prairie Violet)
Zizia aptera (Heartleaf Meadow Parsnip)

Kuhnia eupatorioides (False Boneset)
Lespedeza capitata (Roundheaded Bush Clover)
Liatris aspera (Rough Blazingstar)
L. cylindracea (Cylindric Blazingstar)
Linum sulcatum (Grooved Flax)
Lithospermum canescens (Hoary Puccoon)
L. incisum (Narrow-leaved Puccoon)
Monarda fistulosa (Wild Bergamot)
Oenothera biennis (Common Evening-primrose)
Panicum leibergii (Prairie Panic Grass)
 **P. oligosanthos* (Scribner Panic Grass)
P. perlongum (Longstalked Panic Grass)
 **Petalostemum candidum* (White Prairie Clover)
P. purpureum (Purple Prairie Clover)
 **Physalis virginiana*
 **Potentilla arguta* (Tall or Prairie Cinquefoil)
Ratibida pinnata (Grayheaded Coneflower)
Rudbeckia hirta (Blackeyed Susan)
Sisyrinchium campestre (Blue-eyed Grass)
Solidago nemoralis (Oldfield Goldenrod)
S. rigida (Stiff Goldenrod)
 **Sorghastrum nutans* (Indiangrass)
 **Sporobolus heterolepis* (Prairie Dropseed)
 **Stipa spartea* (Needlegrass)
Tradescantia ohiensis (Common Spiderwort)
Viola pedata (Birdsfoot Violet)
 **V. pedatifida* (Prairie Violet)

5. Dry Prairie

- Amorpha canescens* (Leadplant)
Andropogon gerardi (Big Bluestem Grass)
 **A. scoparius* (Little Bluestem Grass)
Anemone cylindrica (Prairie Thimbleweed)
A. patens (Pasqueflower)
Antennaria neglecta (Pussytoes)
Arabis lyrata (Lyre-leaved Rockcress)
 **Arenaria stricta* (Rock Sandwort)
 **Artemisia caudata* (Beach Wormwood)
Asclepias verticillata (Whorled Milkweed)
A. viridiflora (Short Green Milkweed)
Aster azureus (Azure Aster)
A. ericoides (Heath Aster)
A. laevis (Smooth Aster)
A. oblongifolius (Aromatic Aster)
 **A. ptarmicoides* (White Upland Aster)
 **A. sericeus* (Western Silvery Aster)
 **Bouteloua curtipendula* (Sideoats Grama Grass)
Castilleja sessiliflora (Downy Yellow Painted Cup)
Comandra richardsoniana (False Toadflax)
Coreopsis palmata (Prairie Coreopsis)
Desmodium illinoense (Illinois Tick-trefoil)
Erigeron strigosus (Daisy Fleabane)
Euphorbia corollata (Flowering Spurge)
Geum triflorum (Prairie Smoke)
Hedeoma hispida (Mock Pennyroyal)
Helianthus laetiflorus (Rigid Sunflower)
H. mollis (Downy Sunflower)
Koeleria cristata (Junegrass)
Kuhnia eupatorioides (False Boneset)
 **Liatris cylindracea* (Cylindrical Blazingstar)
Linum sulcatum (Grooved Flax)
Lithospermum incisum (Narrow-leaved Puccoon)
Monarda fistulosa (Wild Bergamot)
Muhlenbergia racemosa (Green Muhly Grass)
Oenothera biennis (Common Evening-Primrose)
 **Panicum perlongum* (Longstalked Panic Grass)
Penstemon pallidus (Pale Penstemon)
 **Petalostemum purpureum* (Purple Prairie Clover)
Physalis subglabrata (Tall Ground Cherry)
P. virginiana (Lance-leaved Ground Cherry)
Potentilla arguta (Prairie Cinquefoil)
Psoralea esculenta (Prairie Turnip)
Rosa sp. (Prairie Roses)
Ruellia humilis (Hairy Ruella)
Scutellaria parvula (Small Skullcap)
Sisyrinchium campstre (Blue-eyed Grass)
Solidago nemoralis (Oldfield Goldenrod)
S. rigida (Stiff Goldenrod)
Sporobolus heterolepis (Prairie Dropseed)
Stipa spartea (Needlegrass)
Verbena stricta (Hoary Vervain)
Viola sagittata (Arrow-leaved Violet)

"Prairie is composed of many different species of native American plants. It appears as an inextricable mass of endlessly variable vegetation. One glories in its beauty, its diversity, and the ever changing patterns of floral arrangements. But he is awed by its immensity, its complexity, and the seeming impossibility of understanding and describing it. But after certain principles and facts become clear, one comes not only to know and understand the grasslands but also to delight in them and to love them."--J.E. WEAVER, North American Prairie.

SUCCESSION

Succession does occur in the prairie, but unlike a forest, the orderly and progressive replacement of plants by others that can more successfully compete is limited by the physical geography to a certain soil-moisture segment of the prairie. Only if the physiography changes, can one prairie segment develop into another. Therefore, a prairie is almost always limited to secondary succession which is a form of succession on disturbed areas. In the prairie, the disturbance may be due to (1) plowing, (2) mowing or (3) animal activities such as trampling, wallowing, feeding and burrowing. The secondary succession begins with the annual weedy pioneer, continues to short-lived perennials and ends with a mature prairie of long-lived perennials of the prairie segment determined by soil moisture. If quackgrass is present, it would replace the annual weeds and in turn may be replaced by the enduring bluegrass which may not be replaced by prairie plants for many years. Prairie plants can compete with exotic grasses and will eventually crowd them out if the seed is available to get them established, and if openings develop in the sod due to weather, fire or other disturbances.

Annual weedy pioneers	→ Short-lived perennials	→ Long-lived perennials
(often exotic) (as ragweed)	(as wildrye or black-eyed susan) (quackgrass may substitute)	(as big as bluestem or Indiangrass) (bluegrass may take over)

In developing a prairie, the weedy annuals and/or the short-lived perennials can be used more profusely in a seed mixture to form a good temporary cover crop for the exposed soil. They will be replaced in undisturbed areas by the long-lived perennials. The weedy pioneers and short-lived perennials will never completely disappear because of some new areas of disturbance always appearing.

"Shade tolerance plays a minor role in the prairie, not because low light is never a factor, but because solid canopies produced by a given set of dominants are rarely if ever produced. The very great importance of burrowing animals with their newly deposited mounds of mixed subsoil has no exact counterpart in the forest. In effect, there is a continual, internal succession going on in the prairie at all times, with new mounds being invaded by pioneer species tolerant of extremes in moisture and nutrient supply and able to withstand full sunlight in their seedling stages. As the mounds become mature and are gradually eroded away to base level, these pioneer plants are replaced by others with more exacting needs and finally by the most conservative prairie species which need a more even supply of soil materials and whose seedlings are able to grow in reduced light. Thus, the prairie consists of a large proportion of micro-gap phases, each of rather short duration. Any given spot of mature prairie is likely to be destroyed and replaced by pioneer plants at any time. The overall composition of a large area of prairie may remain stable and constant, but any small area within it would show violent fluctuations with time." — JOHN T. CURTIS, The Vegetation of Wisconsin.

PRAIRIE PLANT LISTING

16

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>DESCRIPTION</u>	<u>HABITAT</u>	<u>HARVEST</u>	<u>PROPAGATION METHODS</u>
Agoseris cuspidata (Microseris cuspidata)	Prairie Dandelion	6-14". Narrow crinkly leaves crowded near base; bare flower stem with dandelion-like yellow head; May-June.	Dry prairies, often rocky or gravelly; very rare.	July	#1-4. (not tested).
Agropyron trachycaulum	Slender Wheatgrass	2-3'. Erect and tufted; erect, awnless, sessile spikelets; July-Aug.	Dry-moist prairies; open woods; shores.	Oct.	#1-4.
Agrostis hyemalis	Ticklegrass; Hairgrass	1-3'. Erect leaves, chiefly basal; loose open cluster of spikelets as in redtop; April-July.	Dry-moist prairie, bogs and thin woods; not common.		#3 and 4. Easy by #3.
Agrostis scabra (A. hyemalis var. tenuis)	Ticklegrass; Hairgrass; Rough Bent- grass	1-3'. Similar to <u>A. hyemalis</u> without close clusters and blooming later; June-Nov.	As in <u>A. hyemalis</u> but common.		Same as <u>A. hyemalis</u> .
Aletris farinosa	Colicroot; Whitetube Stargrass	2-3'. Thin grass-like leaves at base; bare flower stalk with spike of white tubular flowers; June-July; desirable for moist, grassy wild garden.	Moist or dry sandy prairies; open woods and barrens; sandy acid soil.		Seed and slowly by division.
Allium canadense	Wild Garlic; Canada Garlic; Wild Onion	1-2'. Narrow ribbon-like leaves; flowers often absent but has small aerial bulblets; May-July.	Moist-mesic prairies; open woods.	Aug.	#1-4. Easy from aerial bulblets and by division of bulbs in fall.
Allium cernum	Nodding Wild Onion	1-2'. As above but with attractive pink to white flower heads; late July to late Aug.; used in garden.	Moist-mesic prairies.	Oct.	#1-4. Easy by #3; the bulbs or bulb offsets rapidly produce it.
Ambrosia artemisifolia elator	Common Ragweed	Weed common as pioneer plant in prairie; hayfever producer. Aug.-Sept.	Waste places and open spaces.		Not to be planted because of hayfever factor.

17

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>DESCRIPTION</u>	<u>HABITAT</u>	<u>HARVEST</u>	<u>PROPAGATION METHODS</u>
*Amorpha canescens	Leadplant	1½-3'. Shrub with hairy com- pound leaves; dense violet spikes on new wood; late June-July.	Dry-mesic prairies and sandy open woods.	Oct.	#3 and 4. Slow and can damp off; needs inoculation; suckers and layering in summer; green wood cuttings grow readily under glass early in season; hard wood cuttings planted in an open protected place and remain- ing for a year.
*Andropogon gerardi	Big Blue- stem Grass; Turkeyfoot Grass	4-6'. Warm season grass grow- ing slowly in spring; will slowly form sod; attractive reddish cast after frost; blooms Aug. to early Sept.	Moist-dry prairies.	Oct.- early Nov.	#1-4. Blooms 1st year if sown early; best if sown directly in field; only cold stratification neces- sary.
*Andropogon scoparius	Little Bluestem Grass	2-4'. Warm season grass but not forming sod; excellent fall color; blooms mid-Aug. to mid-Sept.	Moist-dry prairies.	Oct.- early Nov.	#1-4. Only cold stratifi- cation necessary; likes small companions.
*Anemone canadensis	Canada or Meadow Anemone; Canada Windflower	1-2'. Attractive pure white 1½" flowers late May to mid- July; good garden plant, including the rock garden.	Moist-mesic prairie or open woods; needs humus soil; pH 6-7.	Aug.- Sept.	#1-4. Very easy by divi- sion, root cuttings and seed (germination low); large colonies form quickly; no treatment necessary.
*Anemone cylindrica	Prairie Thimbleweed	12-20". Somewhat coarse leaves with single greenish to white flowers; mid-June to mid-July.	Dry to mesic prairies; needs some humus; pH 6-8.	Oct.	#1-4. Easy by #3; blooms 2nd year; can be divided; easily transplanted; no stratification necessary; likes small companions.

*Common plants that collectively cover about 75% of the prairie.

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>DESCRIPTION</u>	<u>HABITAT</u>	<u>HARVEST</u>	<u>PROPAGATION METHODS</u>
*Anemone patens var. wolfgangiana	Pasque-flower	4-10". Attractive silky, ferny foliage; attractive, solitary, blue to purplish flowers 2½" wide in April before foliage; interesting feathery seed plumes; excellent garden plant.	Dry-mesic prairies; can't endure tall competition.	May	#1 and 3. Preferably plant in flats while fresh in any well-drained soil in sun or part shade; pH 6-8; can be sown in spring and transplanted following spring; needs small companions; can be divided in late summer or early spring; 2-3 weeks of cold stratification only.
*Antennaria sp. A. neglecta A. plantaginifolia	Pussytoes; Field Pussytoes; Plaintain-leaf Pussytoes	4-12". Creeping plants with white woolly leaves in rosettes and small bristly flower heads in May on nearly leafless stems; can be used in rock gardens.	Dry and stoney to mesic prairies and open woodland; often in degraded habitats.		#1-4. Readily divided in spring or fall; cuttings used.
Apios americana (A. tuberosa)	Wild Bean; Groundnut; American Potatobean	4-8'. Vine climbing over forbs and shrubs; tuberous roots; 5-parted leaves; brown-purple flowers in clusters; July-Sept.; edible tubers.	Moist woods and thickets; occasionally moist prairies.	Oct.	Seed often does not develop; tubers used; planted 3-4' deep; can get weedy.
*Apocynum androsaemifolium	Spreading Dogbane	1-4'. Branching plants with ovate leaves and numerous, small, fragrant, pink flowers at the terminal ends; June and July.	Open oak woods and edges, sometimes prairies; prefers sandy, acid soil.	Sept.	#3 and 4. No stratification needed; easy by division in spring or fall; spreads rapidly by underground stems.
*Apocynum cannabinum	Indian Hemp or Indian Dogbane	1-3'. Erect branched stem; oval to elliptic leaves; white to greenish-white flowers; June-Aug.	Mesic-dry prairies.	Oct. and Nov.	#3 and 4. Easy by division in spring or fall; no stratification needed.

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>DESCRIPTION</u>	<u>HABITAT</u>	<u>HARVEST</u>	<u>PROPAGATION METHODS</u>
Arabis glabra	Tower Mustard	2-4'. Biennial; erect stem, hairy below only; lance-shaped lower leaves overlapping and stemless; cream flowers June-July; erect pods 4" long.	Dry open areas and ledges; often disturbed areas; often a weed.	Sept.	#1-4. Easy.
Arabis lyrata	Lyre-Leaved Rockcress	4-12". Rosette of deeply lobed basal leaves and a few narrow stem-leaves; clusters of white flowers; April-May; suitable for rock garden.	Limited to well drained, rocky or sandy soil; endures dryness; mesic-dry prairies; acid or neutral soil.		#3 and 4. Seedlings transplanted from flats to nursery bed when 2" high; cuttings after flowering, placed in sandy soil; divided in Sept.
*Arenaria stricta	Rock or Stiff Sandwort	4-16". Perennial or annual with needle-like leaves on thin stems, often matted; tiny white flowers; June and July; used in rock gardens.	Rocky and gravelly prairies; often calcareous and low sand ridges.	Late Aug. and Sept.	#3-4. Divided in early spring or in summer after completing most of the growth; cuttings in sandy soil in July in closed frame.
Aristida basiramea	Forktip Threawn Grass	1-2'. Annual; erect with very narrow blades; slender, loose panicle; long coiled awns.	Dry, sterile or sandy prairies and dry rocks.		
*Artemisia caudata	Beach Worm-wood	1-3'. Biennial, usually single stemmed and smooth; numerous heads in elongated panicle-like bloom; July to Sept.	Sand and gravelly hill prairies; sandy open woods.	Oct.	#1-4. Easy; self-seeds readily; cuttings in early summer; division in spring.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Artemisia ludoviciana</i>	Louisiana Wormwood White Sage	2-3'. Rhizome; white downy stem and leaves; narrow lance-shaped leaves; somewhat narrow terminal bloom; July-Oct.; aromatic and used in garden.	Prairies; dry ground; probably introduced from West.	Oct.	Seeds; division, cuttings in early summer.
<i>Artemisia serrata</i>	Sawtooth Wormwood or Sagebush	3-7'. Stout rhizome; smooth stem and leaves; lance-shaped leaves; Aug.-Oct.; aromatic.	Mesic-moist prairies; very rare.	Oct.	Seeds; division of roots in early spring.
* <i>Asclepias amplexicaulis</i>	Blunt-Leaved or Sand Milkweed	1-2½'. Erect stem with 2-5 pairs of oblong or oval and wavy clasping leaves; greenish flower cluster with some purple; June and July; more slender pods than <u><i>A. syriaca</i></u> .	Very sandy prairies and open woods.	Oct.	#1-4. Readily reseeds; easily grown from spring cuttings and root division in fall or spring; shoots come late; blooms 3rd year from seed; all <u><i>Asclepia</i></u> need cold stratification only.
<i>Asclepias hirtella</i> (<i>Acerates hirtella</i>)	Tall Green Milkweed	2'. Stout stems with linear leaves; greenish flower clusters; late July and early Aug.	Dry and sandy prairies; usually flat sandy areas.	Late Sept.	Similar to <u><i>A. amplexicaulis</i></u> .
<i>Asclepias incarnata</i>	Swamp Milkweed	2-4'. Smooth stout stem and smooth, narrow, lance-shaped leaves; very attractive deep pink flower clusters; June-Aug.; good in garden.	Swamps and wet marshes and wet prairies.	Oct.	Similar to <u><i>A. amplexicaulis</i></u> .
<i>Asclepias lanuginosa</i>	Woolly or Green Milkweed	½-1'. Creeping rhizome 2-3" linear oblong leaves; single whitish terminal flower cluster; June.	Dry woods and prairies; usually dry, gravelly glacial soil; local or rare.	Aug.	Difficult by seed; division.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Asclepias meadii</i>	Mead's Milkweed	1-2'. 3-5 pairs of wide lance-shaped leaves; few greenish flower clusters; June.	Mesic-dry prairie; very rare and local.	Aug.	Difficult by seed; very delicate.
<i>Asclepias ovalifolia</i>	Dwarf or Oval-Leaved Milkweed	8-20". Slender stems with oblong or elliptical leaves; single, whitish, loose, terminal flower cluster; June-July.	Dry prairies.	Sept.	
<i>Asclepias purpurascens</i>	Purple Milkweed	2-3'. Similar to <u><i>A. syriaca</i></u> but with more pointed leaves and with deep magenta-red flowers; July.	Dry-moist, usually in woods and open thickets.	Sept.	Seed. #3 successful.
<i>Asclepias sullivanti</i>	Sullivant's or Prairie Milkweed	2-5'. Similar to <u><i>A. syriaca</i></u> but smooth; dull pale purple to pink flower clusters in July; does well in garden with attractive foliage and flowers.	Moist-mesic prairies.	Oct.	Seed. #3 successful.
* <i>Asclepias syriaca</i>	Common Milkweed	3-4'. Stout, erect, downy plant with drooping pink flower clusters; large warty pods; blooms June-Aug.	Dry-mesic prairie.	Late Sept.-Oct.	#1-4. Similar to <u><i>A. amplexicaulis</i></u> .
* <i>Asclepias tuberosa</i>	Butterfly-weed; Butterfly Milkweed; Pleurisy Weed	1-2'. Bushy clumps with several flower stalks; attractive orange flower clusters; late June-late Aug.; highly desirable in sandy garden or rock garden.	Dry and sandy or gravelly prairies and mesic prairies.	Oct.	#1-4. Plant in spring or fall for bloom 2nd or 3rd year, occasionally blooms the 1st year; can start indoors in February; transplant seedlings by mid-summer; taproot makes transplanting of older plants difficult; younger plants transplant readily; can use root cuttings; endures drought very well; easiest of all milkweeds; seed needs cold treatment only.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Asclepias verticillata</i>	Eastern Whorled Milkweed	8-20". Many rhizomes; slender with grass-like leaves; several white to greenish-white flower clusters; June-August.	Dry-moist upland woods and prairies; weedy and may not be desirable.	Oct.	Similar to <u>A. Amplexicaulis</u> .
* <i>Asclepias viridiflora</i> (Acerates viridiflora)	Short Green Milkweed	1-2½'. Erect stem; small flower clusters greenish; late June to mid-July.	Dry prairies, barrens and dunes; occasionally mesic areas.	Early Oct.	Similar to <u>A. Amplexicaulis</u> .
* <i>Aster azureus</i>	Azure Aster	1-4'. Coarse unless given competition; bright blue or violet flowers; early Sept. to mid-Oct.	Mesic-dry or sandy prairie.	Late Oct.	#1-4. Readily self-sows; easily divided in late fall or early spring; spring cuttings used when shoots 1½-2" and placed in sand under glass; can bush out by pinching or cutting back by July 1; needs cold stratification or scarification.
* <i>Aster ericoides</i>	Heath Aster	1-3'. Somewhat weedy but attractive in masses; numerous tiny white blossoms in late Sept.	Dry to mesic prairies.	Late Oct.	Similar to <u>A. azureus</u> but seed may germinate poorly; needs no stratification.
* <i>Aster laevis</i>	Smooth Aster	1-3'. Smooth with pale bloom on foliage; toothless clasping leaves; blue-violet flowers; early Sept. to early Oct.	Dry to moist prairie and wood edges.	Late Oct.	#1-4. Easy by #3 and 4; blooms late 1st year; needs no stratification.
<i>Aster linariifolius</i>	Savory Leaf or Flaxleaf Aster	6-20". Few light blue-violet flowers; Sept.-Oct.; desirable in dry sterile rock garden; one of more beautiful asters.	Dry or sandy prairies and open woods; rather acid soil.	Nov.	Similar to <u>A. azureus</u> ; also root cuttings and stem cuttings in summer.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Aster novae-angliae</i>	New England Aster	1-4'. Showiest, with large, violet to red-purple flowers; Aug.-Oct.; used in gardens	Moist-mesic open areas or open woodlands.	Late Oct.-Nov.	Similar to <u>A. azureus</u> ; easy by seed and division; benefited by stratification.
* <i>Aster oblongifolius</i>	Aromatic Aster	1-2'. Low and bushy with rich violet flowers; Sept.-Oct.	Dry open area and limestone banks.	Late Oct.-Nov.	Similar to <u>A. azureus</u> .
* <i>Aster pilosus</i>	Hairy or White Aster	1-4'. Densely spreading stems with numerous short, narrow awl-shaped leaves; numerous white flower heads in open cluster; Aug.-Oct.	Dry or moist disturbed or waste areas; weedy.	Oct.-Nov.	Similar to <u>A. azureus</u> .
* <i>Aster ptarmicoides</i>	White Upland or Stiff Aster	1-2'. White flowers in flat cluster. Early Aug. to mid-Sept.; best aster for dry gardens.	Dry, gravelly glacial hills and dunes; rare.	Early Oct.	Similar to <u>A. azureus</u> .
<i>Aster sagittifolius</i> or Drummond's Aster (<i>Aster sagittifolius</i>)	Arrow-Leaved or Drummond's Aster	1-4'. Smooth stem with narrow, arrow-shaped, shallow-toothed stemmed leaves; often numerous cluster of pale blue to pink or white flowers; Aug.-Oct.	Dry open woodland and disturbed open areas; weedy.	Oct.-Nov.	Similar to <u>A. azureus</u> .
* <i>Aster sericeus</i>	Western Silvery Aster	1-2'. High ornamental foliage; bright red-like flowers; mid-Sept. to early Oct.	Dry to mesic prairie.	Mid Oct.	Similar to <u>A. azureus</u> ; easy by #3.
<i>Aster simplex</i>	Panicled or White Field Aster	2-4'. Many small white to bluish flowers; Sept. to Oct.	Moist low places.	Late Oct.	Similar to <u>A. azureus</u> ; weedy and may not be advisable.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Aster umbellatus	Flat-Top Aster	1-5'. Erect and bushy from creeping rhizome; narrow, elliptic smooth-edged leaves; dense, flat clusters of white flower heads; July-Sept.	Boggy low areas and cal- careous fens.	Oct.- Nov.	Similar to <u>A. azureus</u> .
Astragalus canadensis	Canadian Milk Vetch	1-4'. White to yellowish flower cluster; July-Aug.	Dry, often sandy prairies, open woodlands, river banks and shores; becoming rare.	Oct.	#1 and 3. Inoculate seed; germinate slowly; stratify; division difficult; cuttings sometimes used.
Baptisia australis	Blue Wild Indigo; Rattleweed	2-4'. Smooth, stout peony- shaped plant with 2-3" clover- like leaves; few to many clusters of pea-like indigo blue flowers; June; very attractive and used in garden.	Rich woods and open areas; introduced and spread from the South.	Sept.- Oct.	#1-4. Seeds benefit from stratification and scarifi- cation; damping off occurs; inoculate; shoots come late in field; trans- plant at 2 years; division in fall, but difficult.
*Baptisia leucantha	White Wild Indigo	2-4'. White flower cluster in June; attractive.	Moist-dry prairie; sandy marshes and sometimes in open woods and thickets.	Sept.	Similar to <u>B. australis</u> .
*Baptisia leucophaea	Cream Wild Indigo	1-2½'. White or cream colored flower clusters in June; attractive and one of best for garden use.	Mesic-dry prairies; sand barrens and oak openings.	Aug.- Sept.	#1-4. Similar to <u>B. Australis</u> .
Blephilia ciliata	Downy Wood Mint; Ohio Horse Mint	1-3'. Erect downy stems with ovate to lance-shaped, paired leaves with few teeth; whorles of terminal, pale purple flowers with purple spots and lavender bracts; June-Aug.	Dry-moist open woods and sometimes dry- moist prairies and limestone glades.	Oct.	#1-4.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Bouteloua curtipendula	Sideoats Grama Grass	1-3'. Highly ornamental bunch grass but little fall color; July-Sept.	Dry prairies	Early Oct.	#1-4. Easy by #3 and 4; blooms 1st year; benefits from stratification.
*Bouteloua hirsuta	Hairy Grama Grass	10-18". Tufted bunch grass with slender stems that spread outward; July-Sept.	Shallow sandy or rocky sites; tolerant of soil.	Early Oct.	#1-4.
Bromus kalmii	Prairie Brome Grass	1½-3'. Annual; hairy spikes; no fall color.	Calcareous dry-moist prairies and calcareous areas.	Early Oct.	#1-4. Very easy by #1.
Cacalia atriplicifolia	Pale Indian Plantain	3-5'. Large, smooth, round whitish stem; palmately veined, lobed leaves; white, flat clusters of flowers; July-Sept.	Dry woods and prairies.	Sept.- Oct.	Easy by #3.
Cacalia suaveolens	Sweet- Scented Indian Plantain	3-5'. Similar to above with arrow-shaped leaves.	Woods and clearings; are rare in wet prairies.		
*Cacalia tuberosa	Tuberous Indian- Plantain	2-4'. Similar to above with large, thick, pointed, oval leaves; buds are attractive.	Moist to mesic prairies.	Late July	#3. But germination low; blooms 2nd year; needs no stratification.
*Calamagrotis canadensis	Bluejoint Reed Grass	2-4'. Tall reeds in heavy clump; July-Aug.	Open wet- moist meadows, prairies and swamps; chiefly marsh plant.	Oct.	#2 and 4. Division.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Callirhoe triangulata	Clustered Poppymallow	Creeping stem; foliage downy; leaves chiefly triangular; several flowers from each of upper axils purple to red- purple; June-Aug.	Dry sandy prairies; rare.	Oct.	#1-4. Easy from seed; cuttings used; division.
*Calopogon pulchellus	Grass-Pink Orchid; Calopogon	½-2'. Slender stem with grass- like leaves; loose slender racem of 3-15 one inch rose- pink flowers with yellow crest; June-Aug.	Sun or light shade in very acid soil that doesn't dry; bogs and wet meadows.	Late Sept.	Very difficult to grow; some consider impossible.
Camassia scilloides	Wild Hyacinth; Camass	10-20". Bulbous plant with narrow basal leaves; blue to blue-violet flowers in termi- cluster; attractive but not showy; May.	Mesic-wet prairie in loamy soil and open woods.	July	#1 and 2. Easy from seed and bulbs; bulbs planted 3-5" deep.
26 Campanula rotundifolia	Harebell; Bluebells of Scotland	6-15". Tufts of small, round leaves in spring which are replaced by slender, wiry stems bearing attractive violet-blue bells; attractive in garden and rocky areas; July-Sept.	Open, sandy woods; dry- mesic prairie; rocky cliffs.	Sept.	#1-4. Readily seeds and grows. Needs stratification; prefers good drainage; can be grown from root cuttings or stem cuttings in sandy loam in September and protected in winter in coldframe; can also be divided in spring.
Cardamine bulbosa	Bulbous or Spring Cress	8-20". Bulblike roots; white flowers in terminal clusters; for swamp garden; April-June.	Wet prairies and open woods; chiefly marsh and fen; moder- ately acid soil.	Aug.	#3 and 4. Division after flowering; cuttings used in sandy soil in coldframe; spreads by seeds.
Carex sp.	Sedges	6-30". Some species are: 1. acuatilis 2. bebbi	Wet meadows, marshes Wet calcareous meadows.	Summer and early fall.	#1-4. Easy by #3; divided in spring or fall.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Carex sp.	Sedges	3. bicknellii 4. foenea 5. meadii 6. richardsonii 7. suberecta	Dry-moist. Dry sandy. Dry-wet. Dry-mesic; rare. Open marshes and prairies.		
27 Castilleja coccinea	Indian Paintbrush or Scarlet Painted Cup	1-2'. Annual or biennial; dense spike of scarlet bracted flowers; June-Aug.; showy.	Moist-mesic prairies and damp open areas.	Sept.	Semi-parasitic on roots of other plants so can't transplant; chance of seed- ing in the grassy field when seed fresh. #3 can be used with chopped fresh turf as part of soil mixture.
Castilleja sessiliflora	Downy Paintbrush or Downy Yellow Painted Cup	10-15". Leafy with dense greenish spike; June-July; rare.	Dry hills and stable dunes.	Sept.	Semi-parasitic, sucking sap from grass roots; chance of seeding in grassy field from fresh seed. #3 can be used with chopped fresh turf as part of soil mixture.
*Ceanothus americanus	New Jersey Tea	1½-3'. Moderately attractive bushy shrub; terminal clusters of white flowers; late June- late July; blooms on new wood.	Dry woods and mesic-dry sandy open areas.	Sept.- Early Oct.	#3. Germination low; can soak in hot water and stratify 2-3 months; may be short lived; cuttings of mature wood in fall or of soft wood in spring and placed in sandy soil in coldframe; root division; also layering.

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>DESCRIPTION</u>	<u>HABITAT</u>	<u>HARVEST</u>	<u>PROPAGATION METHODS</u>
* <i>Cicuta maculata</i>	Spotted Cowbane; Water Hemlock	3-5'. Stout, much branched with compound leaves and many white terminal umbels; July-Aug.; all parts poisonous to eat.	Swamps, marshes and moist-wet prairies.	Sept.- Early Oct.	Easily propagated by seeds and division.
* <i>Cirsium discolor</i>	Pasture or Oldfield Thistle	Biennial 3-5'. Large attractive purple to whitish flowers on thorny coarse foliage; Aug.-Sept.	Open areas and open woods; ordinary mesic to dry soil.	Oct.	#3-4. Blooms and dies in 2nd year; probably too weedy to grow; resents being disturbed.
<i>Cirsium hillii</i>	Hill's Thistle	1-2½'. Biennial; stout plant with large attractive purple to whitish flowers on spiny coarse foliage in late June.	Prairies and open areas, mesic to dry.	Late July	Easy by #3 but often short lived; susceptible to aphids; resents disturbance.
* <i>Comandra richardsoniana</i>	False or Bastard Toadflax	6-12". Low herb parasitic on roots of various herbs or shrubs with terminal clusters of small white flowers in June and July.	Wet-mesic prairie and upland woods.	Aug.	Parasitic and should be associated with other plants.
* <i>Convolvulus sepium</i>	Wild Morning-Glory; Hedge Bindweed	Vine. Arrowhead-shaped leaves and 2" white or pink flowers; June-Sept.	Mesic prairie.	Sept.- Oct.	#2-4. Root cuttings; division; can get weedy.
<i>Convolvulus spithameus</i>	Upright or Low Bindweed	6-12". Rhizomes; upright with oval leaves; white to pink 2" flowers; June-July.	Dry, sandy or rocky or mesic prairie and open woods; uncommon.	Aug.	#2-4. Root cuttings; division.

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>DESCRIPTION</u>	<u>HABITAT</u>	<u>HARVEST</u>	<u>PROPAGATION METHODS</u>
<i>Coreopsis lanceolata</i>	Sand or Lanceleaved Coreopsis or Tickseed	1-2'. Erect with lance-shaped leaves; 2" yellow daisy-like flowers on long slender stems; May-July; attractive in garden.	Dry, often sandy prairies.	Sept.	#1-4. Easy; very easy by #3; readily divided and transplanted; root division in early spring.
* <i>Coreopsis palmata</i>	Prairie or Stiff Coreopsis or Tickseed	1½-3'. Leaves in 3 narrow sections; many large yellow flowers; June-July; garden plant.	Mesic prairies and open woods.	Nov.	Similar to <i>C. lanceolata</i> .
<i>Coreopsis tripteris</i>	Tall Coreopsis or Tickseed	3-7'. Single stem and divided large lower leaves; 1½" yellow anise-scented flowers; July-Sept.; too tall for garden.	Alkaline wet-mesic prairie.	Nov.	Similar to <i>C. lanceolata</i> .
<i>Cypripedium candidum</i>	Small White Lady'slipper	8-16". Attractive white flower with greenish sepals; May-June; attractive addition to wet area.	Alkaline, wet to moist humic soil in open or part shade.		Division in spring; needs specific conditions to survive.
<i>Danthonia spicata</i>	Poverty Oat Grass; Poverty Grass; Junegrass	1-2". Dense tufts of small twisted blades chiefly near the base; short cluster of individual spikelets; June-July.	Dry, sandy or gravelly woods and open areas of poor soil.	Sept.- Oct.	#1-4.
<i>Delphinium virescens</i>	Prairie Larkspur	1½-4'. Downy; leaves chiefly basal or below middle of stem, deeply cut into linear segments; elongated group of white to bluish-white flowers; June-July.	Dry-mesic prairie.	Sept.	Seed; root division in spring or fall; cuttings.
* <i>Desmodium canadense</i>	Showy Tick-trefoil; Hoary Tick-clover; Canada Tick-trefoil or Tickclover	2-4'. Bushy with clover-like leaves; pea-like, rose-purple clusters of terminal flowers; July-Aug.; attractive.	Mesic-wet prairies and mesic moist open woods.	Early Oct.	Easy by methods #3 and 4; blooms 2nd year; inoculate; quick to establish; pips transplanted in fall or spring; seeds need no treatment.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Desmodium illinoense	Illinois Ticktrefoil or Tick-clover	3-6'. Tall and spindly with clover-like leaves; elongated terminal clusters of small pale rose-purple flowers; July-Aug.	Dry-mesic prairie, often sandy.	Oct.	Similar to <u>D. canadense</u> but too coarse for #3; needs competition.
Desmodium sessilifolium	Sessile-Leaved Ticktrefoil	2½-4'. Erect stem; 3 narrow downy leaflets with very short stems that are much paler underneath; pink to lavender pea-like flowers in large cluster; July-Aug.	Dry, sandy or sterile soil.	Oct.	Similar to <u>D. canadense</u> .
*Dodecatheon meadia	Midland Shootingstar	1'. Attractive garden plant that disappears by July; rosette of elongated leaves; white to pink flowers; early May-early June; good in rock gardens and others.	Dry-wet prairie and open woods; slightly acid-lime soil; wide tolerance.	Aug.-Oct.	#1-4. Cotyledons 1st year, blooming 3rd or 4th year or later; sensitive to spring fires; easily divided and transplanted after flowering; can use root cuttings in early spring; best if seed sown as soon as ripe; needs cold stratification only.
Dryopteris thelypteris	Marsh Fern	12-30". Scattered upright fronds with narrow dissected blades.	Swamps; wet-mesic prairies and open woods.		Divided and transplanted in spring.
Echinacea pallida	Pale Purple Coneflower	2-3'. Coarse foliage; pale or pinkish purple daisy-like flower heads; late June and early July; too faded color for garden.	Dry-mesic prairie.	Oct.-Nov.	#1-4. Very easy; blooms 2nd year; coarse and needs competition; readily increased by division in spring; root cuttings give rapid increase.
Echinacea purpurea	Purple Coneflower	2-4'. Coarse but broader foliage; red-purple flowers; late June-Sept.; coarse garden plant.	Dry prairies and open woods further south than Wisconsin.	Nov.	Similar to <u>E. pallida</u> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Eleocharis compressa	Flat-stemmed Spikerush	1-2½'. Stout rhizome with slender flat stem; oval terminal spikelet turning golden to brown.	Marshes, shores and wet prairies.		Seed; division; easily naturalized.
Eleocharis elliptica (E. palustris)	Meadow Spikerush	1-3'. Tufts of tall slender stems from obvious rhizome; narrowly oval terminal spikelets pale brown turning dark brown.			Similar to <u>E. compressa</u> .
*Elymus canadensis	Canada Wildrye	2-3'. Stout stems; spear-like leaf blades; cylindrical cluster of hairy seed heads that nod; July-Aug.	Dry-moist prairie; full sun.	Sept.-Oct.	#1-4. Easy and early grower; may gradually disappear; aggressive in warmer areas without competition and may be too weedy; seed benefitted by stratification.
*Equisetum arvense	Field or Common Horsetail	½-2'. Fruiting May-July; sterile stems erect, 10-12 ridged and much branched, sometimes reclining; fertile stems flesh-color.	Stream banks, prairies and woods.		Division, can be weedy.
*Equisetum kansasum (E. laevigatum)	Kansas Horsetail or Scouringrush	1-3'. Branched creeping rhizome; erect unbranched stem with 13-26 rounded ridges.	Sterile sandy or clayey banks, meadows and prairies.		Same as <u>E. arvense</u> .
Eragrostis spectabilis	Purple Love Grass	1-2'. Tufted with firm, fine-pointed leaves; large branching panicle of purple spikelets that eventually acts like tumbleweed; handsome perennial; July-Oct.	Dry, often sandy fields and open woods.	Oct.-Nov.	#1-4.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Erigeron philadelphicus</i>	Philadelphia or Marsh Fleabane	1-2½'. Often biennial; erect, hairy stem with narrow lobed or toothed basal leaves and eared stem-leaves; one to many white to pink small daisy-like flowers; May-Sept.	Moist-mesic prairies and shores; not regular member of prairie.	Aug.	Easy by #3 and 4; easily divided in spring or fall; somewhat weedy.
* <i>Erigeron strigosus</i>	Daisy or Rough Fleabane	1-2'. Similar; small white flowers; May-Sept.	Dry-mesic prairies.		Similar to <i>E. philadelphicus</i> . Can be bad weed and not advised.
* <i>Eryngium yuccifolium</i>	Rattlesnake Master	3-4'. Stiff yucca-like leaves; white ball of flowers; early July-early Aug.; spiny green fruiting ball; interesting foliage and fruit in wild garden.	Moist-dry prairie.	Late Oct.	#2-4. Easy by #3 and 4 but needs competition; readily increased by division in fall or early spring; root cuttings used; needs stratification.
<i>Eupatorium altissimum</i>	Tall Boneset	4-6'. Grayish green, downy and much branched; terminal flat clusters of white flowers; July-Sept.	Open places and woodland; dry soil.	Late Oct.	#1-4. Easily grown by seed and division of roots in spring.
<i>Eupatorium perfoliatum</i>	Boneset	2-5'. Stout rhizome; erect, downy stem with narrow, tapering opposite leaves joined at the base; flat terminal cluster of white flowers; Sept.-Oct.	Moist-wet low ground; wet prairies.	Late Oct.	#1-4. Freely self-sows; divided and transplanted in spring; needs stratification or planting in light.
* <i>Euphorbia corollata</i>	Flowering Spurge	2-3'. Many alternate linear leaves; tiny white flowers in clusters; June-mid Sept.; desirable for rock and wild garden.	Dry-moist prairie and open woods.	Early Sept. (fruit explodes)	#1-4. Easy; seed difficult to get because fruit explodes; easily divided and transplanted; can use root cuttings; blooms 2nd year if spring seeded.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Filipendula rubra</i>	Queen of the Prairie	3-6'. Erect stem from rhizome; pinnately compound leaves with large end leaflet with uneven lobes; large terminal panicle of pink flowers in June-Aug.; attractive and used in gardens.	Low woods, wet shrub areas and wet prairies; uncommon.	Oct.	#1-4. Readily grown in spring or fall by seed or division.
* <i>Fragaria virginiana</i>	Wild Strawberry	5-8". Basal 3-parted leaves that are hairy; small clusters of white flowers; May-July.	Dry-moist prairies in moderately acid soil and many other areas.	June and July.	#1 or 2. Seeds sown as soon as dry and ripe; berries crushed and rubbed in to get seeds; only cold stratification needed; hardy; shoots of runners readily transplanted; off-sets develop rapidly.
* <i>Galium boreale</i>	Northern Bedstraw	1-2½'. Erect stems with 4-leaf whorls; bright white terminal clusters of flowers; June-Aug.; used in wild garden.	Wet-mesic prairies and open woods and shores; neutral to moderately acid soil.	Sept.	#3-4. Division in spring; readily seeds and divides; spreads readily; needs no stratification.
<i>Galium obtusum</i>	Meadow Bedstraw; Wild Madder	8-30". Much branched and matted; 4-leaf whorls; small white terminal flower clusters; June-July.	Moist shaded soil of marshes and wet prairies.	Sept.	Similar to <i>G. boreale</i> .
<i>Galium tinctorium</i>	Dye Bedstraw	1-2'. Much branched and matted; leaves in whorls of 5 or 6; clusters of tiny white flowers.	Wet-moist prairies, swamps and marshes.		Similar to <i>G. boreale</i> .
<i>Gaura biennis</i>	Biennial Gaura	3-6'. Biennial; long branches with small leaves; downy cluster of small white flowers; July-Sept.	Moist or dry prairies and open woods; not common.	Oct.	#1-4. Easily grown from seed; readily transplant seedlings.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Gentiana andrewsii	Closed or Bottle Gentian	1-2'. Deep blue petals stay closed; blooms early Sept. to mid-Oct.; attractive in garden, including rock garden.	Wet-mesic prairies; acid soil; sun or shade.	Late Oct.-early Nov.	#1 and 3. Easily grown; can seed at once on slightly acid, loam soil and pressed in lightly; place in cold-frame and take indoors in March keeping covered with glass; plant seedlings first spring; if #3 is used, seedlings spend full year in flats in coldframe and bloom 3rd year; can also divide old plants in spring; stratify or plant in light; transplants well.
46 Gentiana crinata	Fringed Gentian	1'. Biennial; fringed, deep blue, open petals; Sept.-Nov.; very attractive.	Mesic-wet prairies, banks and low woods.	Late Oct.-early Nov.	Similar to <u>G. andrewsii</u> , but no division.
Gentiana flavida	Yellow Gentian	1-2'. Pale yellow or greenish petals that stay closed; Sept.-Oct.	Wet woods and prairies.	Late Oct.-early Nov.	Similar to <u>G. andrewsii</u> , but more delicate and difficult to grow.
*Gentiana puberula	Downy Gentian	1-1½'. Tight cluster of stemless, deep blue, 5-pointed, open flowers without fringe; Sept.-Oct.; one of most beautiful.	Dry-mesic prairies, often sandy.	Late Oct.-early Nov.	Same as <u>G. andrewsii</u> ; seedlings very delicate and may die; blooms 4th year; needs low competition; division is better method; needs stratification.
Gentiana quinquefolia	Stiff Gentian	½-2½'. 4-ridged stem; tight clusters of small, tubular lilac flowers with 5 bristly lobes; Sept.-Oct.; not very attractive.	Wet prairies and open woods; unpredictable.	Late Oct.-early Nov.	Same as <u>G. andrewsii</u> ; may bloom 2nd year; dies after it blooms.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Gerardia aspera	Pink Gerardia	2-3'. Stiff stem with rough narrow leaves; pink flowers;	Dry, sandy and rocky prairie.	Oct.	#1-4. Semi-parasitic; seed sown in field may yield plants in future years; often difficult.
Gerardia gattingera	Round-stemmed False Foxglove	1-2'. Stem with numerous slender branches bearing a few small leaves; usually 1 pink terminal flower per stem; Aug.-early Oct.; rare.	Dry-moist woods, hills and barrens; calcareous prairies.		Similar to <u>G. aspera</u> .
Gerardia tenuifolia	Slender False Foxglove	1-2'. Stems usually branched; leaves linear; rose-pink paired flowers from axils; Aug.-Oct.	Moist prairies and low woods.		Similar to <u>G. aspera</u> .
*Geranium maculatum	Wild or Spotted Geranium	1-2'. Attractive, deeply cut and notched leaves and terminal clusters of rose-purple flowers; May-June.	Moist-mesic soil in part shade.	Aug.	#1-4. Self-sows freely; readily divided in spring or fall.
*Geum triflorum	Prairie Smoke; Long-plumed Purple or Prairie Avens	1'. Low, soft, hairy stem with many deeply cut leaves; red sepals and pink petals; very long feathery hairs on fruiting head; attractive over a long period; blooms late April and early May; foliage and bloom makes it a desirable garden plant.	Dry-moist prairies and open woods; thrives in poor soil.	Late May and June;	#1-4. Best results when planted immediately; keep on drier side to avoid damping off; sensitive to spring fires; can be divided in late summer; easily transplanted; adults drought resistant; plant where grass not heavy; seed needs no treatment.
Glyceria striata	Fowl Meadow Grass	1-5'. Loosely or densely tufted; slender flat blades; June-Sept.	Moist ground, marshes and bogs.	Oct.	#1-4.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Habenaria leucophaea</i>	White or Prairie Fringed Orchid	1-3'. Lanced-shaped, often blunt leaves; attractive spike of white to greenish lacinated flowers, late June and July.	Moist, wet prairies; neutral to moderately acid, humic soil.		Not artificially produced; difficult to transplant.
* <i>Hedeoma hispida</i>	Mock or Rough Pennyroyal	2-8". Annual; strong scented; numerous small, axillary, blue flowers; June-Aug.	Dry soil in rocky hills and barrens.	Oct.	Seeds.
<i>Helenium autumnale</i>	Common Sneezeweed	2-5'. Numerous clasping leaves; lemon-yellow daisy-like flowers, July-Oct.; variations used in garden.	Moist-mesic prairie.	Oct.	#1-4. Readily grown; easily divided and transplanted in spring.
* <i>Helianthemum bicknellii</i>	Bicknell Frostweed or Rockrose	1-2'. Erect stems, one or several, simple or branched; later many flowering branches, linear leaves; many non-petalled flowers and groups of yellow large flowers that open once in June and July; varieties used in garden; blooms 3 weeks later than <i>H. canadense</i> .	Dry, usually sandy soil of sand barrens and prairies and open woods; likes limestone soil; marginal prairie plant.	Oct.	#1-4. Easily divided; in August, cuttings taken of young shoots 3" long which are placed in soil under glass.
<i>Helianthemum canadense</i>	Canada or Common Frostweed or Rockrose	8-16". Similar to <i>H. bicknellii</i> but fewer non-petalled flowers and large yellow flowers, single or two; June; attractive.	Dry, usually sandy soil of sand barrens and prairies and open woods.	Aug.	Similar to <i>H. bicknellii</i> .
* <i>Helianthus grosseserratus</i>	Saw-tooth or Bigtooth Sunflower	6-10'. Very smooth whitish stem; many 1-3" yellow headed blooms; Aug.-Oct.; sometimes used in garden and best of group.	Wet-mesic prairies; often degraded habitats.	Oct.-Nov.	#1-4. Cold stratification only; easily seeded and divided; division in fall is common; easily transplanted; may spread widely; quickly establishes; may become weedy; stem cuttings in spring.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Helianthus laetiflorus</i> var. <i>rigidus</i>	Rigid or Stiff or Showy Sunflower	2-6'. Rough hairy stem and leaves; several 2-4" yellow heads with purple centers; late Aug.-Oct.	Dry-moist prairie; usually dry area.	Oct.-Nov.	#1-4. Easy; danger of overlarge colonies; needs competition; quickly establishes; most typical prairie sunflower; only cold stratification.
<i>Helianthus mollis</i>	Hairy or Downy Sunflower	2-4'. Heart-shaped stalkless leaves with clasping stems; foliage hairy white; attractive few yellow heads; Aug. and Sept.; used in gardens in sandy soil.	Dry prairies; good soil produces poor flowers.	Oct.	Similar to <i>H. grosseserratus</i> ; very easy to establish and quickly flowers; attracts goldfinches.
* <i>Helianthus occidentalis</i>	Western or Naked Sunflower	1-3'. Large basal leaves with long stalks; numerous yellow heads; Aug.-Oct.	Dry-mesic prairie.	Oct.-Nov.	Similar to <i>H. grosseserratus</i> .
* <i>Helianthus strumosus</i>	Rough or Pale Leaved Woodland Sunflower	3-6'. Smooth stem; broad, rough, basal leaves with hoary undersides; 2½-4" yellow flowers; July-Sept.	Woods and wood edges; occasionally prairie.	Oct.	Similar to <i>H. grosseserratus</i> .
* <i>Heliopsis helianthoides</i>	Oxeye or False Sunflower	2-5'. Paired, coarse, arrow-shaped leaves; smooth stem; orange-yellow, 2-3" heads; early June-Oct.	Moist-mesic prairies and open woods.	Oct.	Similar to <i>H. grosseserratus</i> .
* <i>Heuchera richardsonii</i> var. <i>grayana</i>	Midland Alumroot	2-3'. Many long-stemmed basal leaves; chartreuse flowers on leafless stalks; late May-late June.	Dry-wet prairie and open, often rocky woodland.	Late July	#1 and 3. Tiny seeds but easily established; blooms 2nd year; division of roots in spring or fall; can divide stolons in fall or spring; cuttings in mid-summer; planting with light or scarification only treatment necessary.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Hieracium longipilum	Long-haired Hawkweed	2-4'. Tall, densely hairy; numerous 1" tan heads; July and Aug.	Dry prairies and open woods, especially sandy soil.	Oct.	#1-4. Seeds readily; can divide stolons in fall or spring; may spread quickly.
Hierochloa odorata	Sweet or Vanilla Grass; Holy Grass	1-2'. Rhizomes; perennial grass with narrow leaves and panicles of gold brownish flowers; early May; desirable for fragrance.	Moist soil of prairie and bogs.	June	#3 and 4. Division of rhizomes in spring.
Houstonia caerulea	Bluets; Innocence; Quaker Lady	2-6". Pretty plant blooming profusely in May and June with white to blue flowers; rock garden and prairie gem.	Moist-mesic prairies; prefers acid soil and modest competition.	July	#1-4. Easy; self-sows readily; sown in fine soil in frames; also careful division in spring or fall; cuttings in spring inserted in sandy peat in covered coldframe; sometimes stubborn.
Houstonia longifolia	Longleaf Bluets	4-8". Many stems from base; linear, sessile leaves; loose clusters of purplish to white flowers; June-Aug.	Dry prairie, especially gravelly soil; rare in some areas.	Sept.	Similar to <u>H. caerulea</u> .
*Hypoxis hirsuta	Yellow or Gold Star-grass	3-7". Grasslike leaves from bulbous underground stem; star-like yellow flowers; May-Aug.; not showy but attractive in rock and wild garden.	Wet-dry prairies and open woods in acid soil; pH 5-6.	Sept.	Seed rarely found but easy and reliable when available; division of offsets of bulbous underground stem in early spring.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Iris virginica shrevei	Wild Blueflag	2-3'. Creeping rhizome forming extensive colonies; very attractive blue-violet flowers in May-July with yellow blotches on petals.	Swamps, marshes, wet-mesic prairies.	Sept.	#1-4. Self-sows freely; best sown as soon as ripe; easy from seed or cuttings; divide rhizomes after blooming; seed placed in light sandy soil in covered flats and covered lightly; transplant seedlings to flats as soon as possible; placed in field early the 2nd year.
Isanthus brachiatus	Fake Pennyroyal	6-8". Erect with narrow lance-shaped leaves with or without stalks; small pale blue flowers, July-Sept.	Calcareous prairies and rock areas.	Oct.	
*Koeleria cristata	Junegrass	1-2'. Grass with close tuft of slender stems and with narrow blades; shiny spike-like flower cluster 2-5" long in early summer; inflorescence very attractive and used as a decoration.	Dry soil and sandy open woods - can't compete with weeds; often in limy areas.		#3-4. Blooms 2nd year.
*Krigia biflora	False Dandelion or Two-flowered Cynthia	1-2'. Claspings upper leaves; deep orange-yellow dandelion-like flower heads; June-Aug.	Woodlands and mesic prairies.	Sept.	Easy by #3.
Krigia virginica	Dwarf Dandelion	6-2". Dense cluster of pinnately lobed leaves from which extend several stems and with dandelion-like flower; April-Aug.	Dry, often sandy soil;	Sept.	Similar to <u>K. biflora</u> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Kuhnia eupatorioides	False Boneset	1-4'. Erect stem with unevenly downy alternate leaves; flat cluster of creamy-white flowers late Aug. thru Sept.; too coarse in garden.	Dry open place; especially sandy soil.	Oct.	#1-4. Easy by #3; good in field with competition; seeds need no treatment, but improved by stratification.
*Lactuca canadensis	Canada or Tall Wild Lettuce	2-8'. Tall branched annual, or usually biennial, leaves smooth edged, toothed or lobed; numerous small yellow heads; July-Sept.	Mesic-moist prairies; open woods, roadsides.	Sept.	#3 and 4. Easy; division in fall or spring.
*Lactuca ludoviciana	Wild Lettuce	1-4'. Biennial with prickly leaves and numerous large yellow heads; July-Sept.	Dry-mesic prairies.	Sept.	
*Lathyrus palustris	Marsh Vetchling or Pea; Wingstemmed Wild Pea	1-3'. Slender partially climbing stem, often winged; 2-4 pairs of leaves; red-purple pea-like flowers; July and August; attractive wet meadow plant.	Shores, meadows, marshes and wet-moist prairies.	Oct.	#3-4. Can divide in spring or fall; inculcate.
*Lathyrus venosus	Showy or Veiny Wild Pea or Vetchling	2-3'. Stout stem with 4-6 pairs of leaves; purple pea-like flowers in June-July; attractive wet meadow plant; desirable in shady rock or wild garden.	Dry-mesic prairie; occasionally open woods.	Sept.	Same as <u>L. palustris</u> .
*Lespedeza capitata	Roundheaded Bush Clover or Lespedeza	2-4'. Erect simple or branched stem with many clover-like leaves; densely bristly cluster of creamy white flowers; Aug.-Sept.	Dry-moist, often sandy prairies and well drained loamy soils.	Oct.-Nov.	#3-4. Of easy culture, especially easy by #4; blooms 2nd year; seedlings tend to damp off; susceptible to herbicides; greenwood cuttings under glass used in summer; division of old plants; seeds need scarification only; inoculate.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Lespedeza hirta	Hairy Bush Clover or Lespedeza	3-4'. Stout spreading downy stem; clover-like leaves usually with broad blunt short-stalked leaflets; dense heads on long stalks with yellowish-white petals and purple base; July-Oct.	Dry open areas, often sandy; open woods.	Oct.-Nov.	Similar to <u>L. capitata</u> .
Lespedeza leptostachya	Narrowheaded Bush Clover or Lespedeza	1½-3'. Similar to above but more slender.	Dry-mesic prairies; very rare.	Oct.-Nov.	Similar to <u>L. capitata</u> ; seeds probably not available.
*Liatris aspera	Rough Blazingstar; Rough Gayfeather	1½-4'. Long narrow rough leaves, upper ones being sessile; numerous rose-purple heads with short to no stalks and broadly rounded, irregularly toothed bracts; garden plant; blooms mid-Aug. to late Sept.	Mesic to dry sandy soil.	Oct.-Nov.	#1-4. Easy; seed best sown in fall; blooms 2nd year; can divide in early spring or better using offsets at base; grows easily but fresh seed may germinate poorly; easy by cuttings in June from 3 or 4" stem sections inserted in sand; only cold stratification needed.
Liatris cylindracea	Cylindric Blazingstar or Gayfeather	8-24". Well developed corm; numerous rigid, linear leaves; few or single rosy lilac heads in tight cylindrical cluster with shining, sharp pointed, flat bracts; late Aug. and early Sept.; garden plant.	Dry limy glacial hills or sandy prairie; rare.	Oct.-Nov.	Similar to <u>L. aspera</u> ; 1st year seedlings have only one linear leaf and easily lost.
Liatris ligulistylis	Rocky Mountain Blazingstar or Gayfeather	1-2'. Similar to <u>L. aspera</u> but with much longer stalks to head; 3-10 reddish lilac heads; Aug. to Sept.; garden plant.	Mostly damp, low open or partially shaded areas; occasionally in mesic soil.	Oct.-	Same as <u>L. aspera</u> ; stratification not needed but improves germination.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Liatris pycnostachya</i>	Prairie Blazingstar; Prairie or Kansas Gayfeather	2-4'. Woody corm or rootstock; numerous grasslike leaves, usually hairy; crowded sessile, rose-lilac heads with reflex, ridged, long-pointed bracts; garden plant and one of the best; late July and early Aug.	Wet-dry prairies.	Early Oct.	Similar to <i>L. aspera</i> ; needs staking in the garden; needs stratification.
<i>Liatris spicata</i>	Spike or Dense Blazingstar or Gayfeather	2-6'. Numerous grasslike leaves, usually hairless; numerous stalkless rose-lilac heads with few long, sticky, purple-red edged bracts; too coarse and floppy for garden; blooms early Aug. to Sept.	Wet-mesic prairie; neutral to slightly acid soil.	Oct.	Similar to <i>L. aspera</i> .
* <i>Lilium michiganense</i> (sometimes considered a var. of <i>L. superbum</i>)	Michigan Lily; Western Turkscap Lily	2-6'. Stout erect stem with whorls of leaves; usually several to many stemmed; nodding, red-orange spotted flowers with reflex petals; blooms late June-Aug.; attractive garden plant and one of the showiest.	Wet-mesic prairie and open woods; likes lime; marginal prairie plant.	Late Sept.	#1, 2 and 3. Produces horizontal rhizomes from bulb and develops new bulbs; can divide in fall; otherwise similar to <i>L. philadelphicum</i> ; seed needs no treatment.
* <i>Lilium philadelphicum</i> var. <i>endinum</i>	Wood Lily; Orange-cup Lily	1½-2½'. Erect with 2-4" leaves in whorls at least near top; 1-5 upward facing, red-orange spotted flowers; June-mid Aug.; attractive garden plant that needs acid soil.	Dry open areas and open woodland; acid loam soil.	Sept.	#1, 2 and 3. Can plant seed 3-4" deep in fall for spring germination; seeds need no treatment; ripe lily seed can also be placed in moist vermiculite for 6-8 weeks at 70° until bulblets develop and then stored at 35° till spring, then planted in flats; can use small scales peeled from base of bulb in fall and plant ½" deep in flat, placed in coldframe; old bulbs returned to soil are planted 5 inches deep.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Linaria canadensis</i>	Blue or Oldfield Toadflax	1-2'. Annual or biennial; slender stem with short narrow leaves; often circle of runners forming rosettes in fall; small numerous blue-violet or white flowers along stem; May-Sept.	Dry, sandy or sterile soil; often weed in sandy loam.	Sept.	#1-4. Division in spring or fall.
* <i>Linum sulcatum</i>	Grooved Flax	1-2½'. Annual; erect stem with narrow, chiefly alternate leaves; branching flower cluster of small yellow flowers; July.	In dry, morainic soil of prairies.	Sept.	#1-4. Easy; may need reseeding for several years; flower 2nd year when spring sown.
* <i>Lithospermum canescens</i>	Hoary Puccoon; Golden Gromwell	8-12". Densely white downy foliage; close clusters of golden-yellow tubular flowers; mid-May to mid-June; highly ornamental; highly desirable in rock garden.	Dry-moist prairies; neutral to slightly acid soil.	July (seed easily lost)	#1-4. Preferably plant seed when fresh; seedlings weak and often die; cuttings of young shoots placed in sand in closed coldframe; difficult to transplant; division in summer; seeds need scarification only.
* <i>Lithospermum croceum</i>	Hairy Puccoon	1-2'. Similar to <i>L. canescens</i> but with wider more numerous leaves with coarse hairs; attractive.	Similar to <i>L. canescens</i> .	July	Similar to <i>L. canescens</i> .
* <i>Lithospermum incisum</i>	Narrow-leaved or Fringed Puccoon	8-12". Very narrow leaves; bright yellow, toothed petals; blooms mid May to early June; attractive.	Dry prairies.	July	Similar to <i>L. canescens</i> .
* <i>Lobelia spicata</i>	Pale Lobelia	1-3'. Erect with narrow, lance shaped, toothless leaves; crowded spike of pale blue to white lipped flowers; June-Aug.	Wet-dry prairies and sandy areas.	Sept.	#1-4. Easy by #3 and 4; can divide in spring; stratify or plant in light.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Lupinus perennis	Wild or Perennial Lupine	1-2'. Palmately compound leaves divided into 7-9 leaflets; terminal spikes of attractive blue to pink to white pealike flowers; late May-June.	Poor, dry-moist sandy or gravelly acid soil; marginal prairie plant; thickets and open woods.	Aug. (collect when barely ripe)	#1 or 2. Collect seed as soon as ripe and sow immediately in mixture of sand, peat moss or leaf mold; erratic germination; inoculate; seedlings often appear in spring; can't divide; can easily transplant little seedlings; don't allow seed to dry.
Lysimachia lanceolata	Lance-leaved Loosestrife	1-2'. Erect with long, paired, narrow, tapered, ovate to oblong stemless leaves; long stemmed yellow flower from axils of upper leaves in July; used in wildflower garden.	Moist-wet woods and prairies.	Aug.	#1-4. Seed soil should be moist; easily divided and transplanted in spring or early fall.
Lysimachia quadriflora	Narrowleaf or Whorled Loosestrife	1-2'. Erect; linear leaves in a whorl of 4; attractive yellow flowers almost all in terminal clusters on stem and branches; July and Aug.	Moist-wet soil, chiefly in prairies.	Sept.	Similar to <u>L. lanceolata</u> .
Lythrum alatum	Winged Loosestrife or Lythrum	2-3'. Tall; twiggy 4-angled branches; leaves lance-shaped to ovate; crimson-purple flowers in axils of upper leaves; July-Sept.; attractive.	Swamps, marshes, wet prairies, calcareous fens and waterways.		#1-4. Easily seeded in moist soil; division in spring or fall.
*Monarda fistulosa	Wild Bergamot or Purple Monarda	2-3'. Square erect stem with paired, lance-shaped, toothed leaves; terminal cluster of pink-purple to pale lilac flowers; early July-Aug.; used in dry wild garden.	Upland woods, openings and wet-dry prairies; very tolerant.	Oct.	#1-4. Very easy; seeds need no treatment; blooms 2nd year from seed planted in spring; easily divided, preferably in spring; fall division may winter kill.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Monarda punctata	Horsemint or Spotted Beebalm	1-3'. Erect square stem with narrow, lance-shaped, toothed leaves; terminal rosettes of pale yellow, purple-spotted, wide-lipped, tubular flowers with showy white or lilac bracts at the base; July-Oct.	Sandy prairies, dunes and sandbars.	Oct.	Similar to <u>M. fistulosa</u> .
*Muhlenbergia cuspidata	Stonyhills Muhly Grass; Prairie Satin Grass	8-16". Erect dense tufts of very slender stems; spike-like panicle of spikelets.	Dry-mesic prairies and hillsides in dry or gravelly soil.		#1-4.
Muhlenbergia glomerata	Green Muhly Grass	1-3'. Erect stems from rhizome; leaves erect, firm and rough; dense, round, purplish to green panicle; Aug.-Oct.; misty effect.	Moist prairies, bogs and wet shores.	Oct.-Nov.	#1-4.
*Muhlenbergia racemosa	Green or Marsh Muhly Grass; Upland Wild Timothy	1½-4'. Erect or declined with ascending, 3-6" rough leaves; compact dense, 2-4" panicle of spikelets without bristles.	Dry soil of prairies; open woods, rocks and bluffs.		#1-4.
*Oenothera biennis	Common Evening Primrose	2-5'. Biennial; erect with lance-shaped leaves; terminal cluster of yellow flowers; July-Oct.; attractive.	Mesic-dry prairie; tolerant.	Oct.	#1-4. Easily raised from seed and cuttings; considered a weed by some.
Oenothera perennis	Small or Perennial Sundrops	1-2'. Erect; cluster of ½" flowers; late June and July; very floriferous and charming in garden including rock garden.	Wet-dry prairie and open woods.	Sept.	#1-4. Easily raised from seed and root or stem cuttings in spring; seedlings transplanted in spring bloom in August; division in spring or fall.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Oenothera pilosella	Prairie Sundrops	1½-3'. Erect biennial; narrow leaves; yellow 1-2" flowers in clusters; July-Sept.	Wet-mesic prairies.	Oct.	Similar to <u>O. perennis</u> .
Oenothera rhombipetala	Sand Primrose	1½-3'. Erect biennial; narrow short leaves; numerous 1-2" yellow flowers in terminal spike; July-Sept.	Sandy prairies and sand barrens.	Oct.	Similar to <u>O. perennis</u> .
Onosmodium hispidissum	Marbleseed; False Gromwell	3-4'. Stout, coarse, erect and hairy; ovate leaves without stalks; white flowers in leafy cluster; June-July; no special attraction.	Dry, calcareous, rocky or gravelly prairies and banks; rare.		
Orobanche fasciculata	Broom-rape	2-6". Parasitic on many plants, particularly <u>Artemisia caudata</u> ; plant color is yellow to brown; scale-like lance-shaped leaves; 3-10 erect, terminal purple flowers; July.	Dry soil of prairies and especially sand dunes.		#3 and 4. Possibility of growing in pots of bean plants when beans 2-3 leaves high - entire clump planted; other hosts could be used.
Opuntia fragilis	Brittle Pricklypear	8". Mounds of 2" plump, oval sections joined end to end; spiny; 2" yellow flowers in June or July; unique.	Dry prairies; open sandy areas.	Aug.	#1-4. Easy; cuttings often used.
Opuntia humifusa (O. compressa)	Spreading Pricklypear	Prostrate and spreading; pale green, often spiny, flattened segments; 2-4" yellow flowers; June-July; unique.	Dry sand prairies and open woods.	Aug.	Similar to <u>O. fragilis</u> .
*Oxalis violacea	Violet Wood Sorrel	4-8'. Tuft of cloverlike leaves, reddish or purplish below, from bulbous stem; 5-petaled, rose-purple or purple-violet flowers; May and June; very attractive and used as garden and house plant.	Dry-mesic upland woods and prairies; prefers slightly acid soil.	July	Rarely is seeded; division of bulbs in spring; easily transplanted; spreads rapidly by runners.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Oxyopolis rigidior	Cowbane	2-6'. Tall, smooth, poisonous plant with a few variable, pinnately compound leaves on stout or slender stem; flat cluster of small white flowers; Aug.-Sept.	Swamps, marshes and wet prairie.	Oct.	Seed.
Panicum capillare	Witchgrass	1-2½'. Annual; erect or reclining with branches upright. hairy stems and leaves; very large diffuse panicle of spikelets becoming "tumbleweed" when ripe; July-Oct.; attractive.	Open sandy, gravelly areas and disturbed areas; widely spread as weed.	Oct.	#1-4.
Panicum lanuginosum var. lindheimeri	Woolly or Hairy Panic Grass	1-2'. Erect to reclining in clumps; downy sheaths; plump spikelets.	Dry open woods, dunes, shores and disturbed prairies.		#1-4. Seeds often sown when fresh; blooms late 1st year; often divided; seeds need no treatment.
*Panicum leibergii	Prairie Panic Grass	8-24". Tufts of stems with 3-4" lance-shaped leaves with rounded base; cluster of spikelets about July; handsome, cool season grass.	Dry-moist prairie, often sandy.		#1-4. Seeds often sown when fresh; blooms late 1st year; often divided.
*Panicum oligosanthos var. scribnerianum	Scribner Panic Grass	1-2½'. Few erect stems with 3-5" lance-shaped, hairy leaves; cluster of spikelets; June-July.	Dry-moist, often sandy soil of woods and prairie.		Similar to <u>P. lanuginosum</u> .
*Panicum perlongum	Longstalked Panic Grass	8-20". Small tuft of stems; erect downy, linear blades.	Dry hills and prairies.		Similar to <u>P. lanuginosum</u> .
Panicum praecocius	Early Panic Grass	8-20". Erect then spreading; erect leaf blades 2-3" long; downy spikelets; June-July.	Dry, often sandy hills, prairies and sandy open woods.		Similar to <u>P. lanuginosum</u> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Panicum virgatum</i>	Switchgrass	3-5'. Stout erect stems in large clumps; blades 8-20" long; too coarse for garden; blooms late July-mid Sept.; cut for decorative purposes.	Open woods, prairies and shores.	Oct.	#1-4. Easy; seeds need no treatment; blooms late the 1st year if planted early; seeds viable 3 years; decreases in Bluestem areas.
<i>Parthenium integrifolium</i>	Wild Quinine	2-3'. Simple or branched erect stem with large, few, rough leaves; flat-topped cluster of white heads, late June to early Aug.; flowers not attractive but foliage interesting.	Dry-mesic prairie and woods.	Late Sept.-Early	#1-4. Easy with spring planting; blooms late 1st year by #3.
<i>Pedicularis canadensis</i>	Wood Betony; Lousewort	6-18". Tufts of hairy stems with pinnately-lobed, ferny, lance-shaped, hairy leaves; terminal bracted spike of yellow and purple or reddish flowers; May-June; interesting ferny leaves and showy flowers.	Dry-wet woods and prairies; likes acid soil.	Late May (seeds drop quickly)	Seeds and division; may be partially parasitic on oaks and others and may not always transplant well.
<i>Penstemon digitalis</i>	Smooth Penstemon or Beard-tongue	3-5'. Erect shiny stem with paired, lance-shaped to oblong leaves; terminal cluster of tubular white flowers diffused with purple; June-July; used in garden but not showy.	Sandy-mesic prairies and open woods; tolerant.	Sept.	#1-4. Readily self sows; readily divided in spring; cuttings in mid summer; spreads rapidly.
<i>Penstemon grandiflora</i>	Largeleaved Penstemon or Beard-tongue	2-4'. Stout smooth stem with thick broad leaves; large, very attractive 2" lilac to blue flowers in terminal clusters; July and Aug.; excellent garden plant.	Dry prairies and barrens; chiefly from the West.	Oct.	#1-4. Tricky beyond dry prairie range; can divide; best treated as biennial; summer cuttings and division best; seeds germinate in 3 weeks; fall seeding gives summer bloom.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Penstemon hirsutus</i>	Hairy or Eastern Penstemon or Beardtongue	1-2'. Slender leaning stems with narrow, hairy, lance-shaped leaves; loose cluster of 1" drooping, dull purple or violet flowers with white lips; June-July; used in garden but modest.	Dry gravelly or sandy prairies, banks and dry woods.	Sept.	#1-4. Easily divides in spring; easily grown; can use short cuttings July-Sept.
<i>Penstemon pallidus</i>	Pale Penstemon or Beardtongue	1-3'. Downy erect stem with narrow lance-shaped leaves; terminal cluster of small white flowers marked with fine purple lines; late May and June; used in gardens.	Dry calcareous woods and prairies; well-drained soil.	Aug.-Sept.	#1-4. Easy despite fine seed; blooms 2nd year; readily self-sows; easily divides; summer cuttings.
* <i>Petalostemum candidum</i>	White Prairie Clover	1-3'. Slender erect stem with pinnately compound leaves; long white flower heads; early July to early Aug.; fairly attractive foliage and flower.	Dry-mesic, well-drained prairies.	Late Sept.	#1-4. #4 is best. Damping off with #3; often blooms late in 1st summer; inoculate; division difficult; likes small companions.
* <i>Petalostemum purpureum</i>	Purple or Violet Prairie Clover	1-3'. Similar to <i>P. candidum</i> but with violet to purple flower heads; early July to early Aug.; attractive wherever grown.	Dry-mesic, well-drained prairies.	Late Sept.	Similar to <i>P. candidum</i> .
<i>Petalostemum villosum</i>	Hairy Prairie Clover	2-3'. Erect slender, hairy stem; much divided leaves; dense cluster of small rose-purple, clover-like heads; July-Aug.; used in gardens, including rock gardens.	Sandy prairies; chiefly western; neutral-lime soil.	Oct.	#1-4. #4 is best; inoculate; division difficult.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Phlox glaberrima</i> var. <i>interior</i>	Smooth Phlox; Marsh Phlox	20-36". Erect slender stem; smooth shining leaves; reddish- purple cluster of terminal flowers; late June to early Aug.; attractive.	Moist-mesic prairie and open woods.	Aug. (capsule explodes)	#2-4. Stratification or overwintering in soil gives good germination; blooms the following year; easiest by division; cut- tings used; easily trans- planted; only cold stratification needed.
* <i>Phlox pilosa</i>	Downy or Prairie Phlox	1-2'. Erect with slender, very hairy stems; sharply tapered narrow leaves; terminal cluster of red-purple flowers in mid May to early July.	Dry-wet prairies and upland woods; moder- ately acid, well-drained soil.	July (capsule explodes)	#2-4. Stratification or overwintering in soil gives good germination; not difficult in moder- ately acid soil with some humus; increased rapidly and easiest by division; root cuttings can be used and gives rapid increase; subject to attacks by garden pests; easily transplanted.
* <i>Physalis subglabrata</i> (<i>P. longifolia</i>)	Tall Ground Cherry	1-4'. Fleshy stout rhizome; erect branched stem; ovate to lance-shaped leaves; yellow to yellowish-green flowers with purple center; July-Aug.; reddish or purple berry.	Moist-dry prairies, shores, open woods and mainly dis- turbed areas.	Oct.	#1-4. Easy by seed and division; divide roots and rhizomes in spring; soft cuttings used.
* <i>Physalis virginiana</i>	Lance- leaved Ground Cherry	1-2'. Deep rhizome and slender hairy branching stem; ovate to narrowly lance-shaped leaves; dull yellow flowers with brown centers; berry yellow, green or red; blooms June-Sept.	Dry-moist prairies and sandy or rocky open woods.	Oct.	Same as <i>P. subglabrata</i> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Physostegia virginiana</i> (<i>Dracocephalum virginianum</i>)	False Dragonhead; Obedient Plant	2-3'. Stout stem with firm lance-shaped leaves; terminal spike of pink to white flowers; early Aug. to mid Sept.; grown in garden.	Moist-mesic prairies and woods; neutral to moderately acid soil.	Oct.	#1-4. Easy by #3 and blooms 2nd year; readily divided in spring; easily trans- planted; small pieces of rhizomes used as root cuttings in spring; stem cuttings in summer.
<i>Poa palustris</i>	Marsh Blue Grass or Fowl Meadow Grass	1½-4'. Stout, often reclining stems with small leaves; termi- nal cluster of spikelets.	Wet-moist prairies and marshes and thickets.		#1-4. Easy from seed but needs 2-3 years to mature.
<i>Polygala incarnata</i>	Pink Milkwort or Polygala	1-2'. Annual; slender stem; alternate, small, linear leaves; white terminal clusters of flowers; May and June.	Dry-moist prairies and woods; one of rarest prairie plants.	July	#1-4. All <i>Polygala</i> commonly grown from cut- tings in peat moss and sand mixture in early spring or Sept. and placed in greenhouse or coldframe.
<i>Polygala polygama</i> var. <i>obtusata</i>	Purple or Bitter Milkwort or Polygama	10". Biennial; several stems, usually reclining; leaves 1" or less; raceme of rose-purple or rarely white flowers; June and July; numerous underground flowers; some charm.	Dry, usually sandy soil of disturbed or sterile prairies and oak savannah.		#1-4. Similar to <i>P. incarnata</i> .
<i>Polygala sanguinea</i>	Blood or Pink or Field Milkwort or Polygala	14-16". Annual; erect simple or branched stem; dense head- like raceme of rose-purple, white or greenish flowers; July-Sept.; charming.	Dry prairies and sandy, sterile or disturbed open areas; moder- ately acid soil.	Oct.	Similar to <i>P. incarnata</i> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Polygala senega	Seneca Snakeroot	16-20". Erect stem, usually unbranched; dense raceme of white to greenish flowers; May and June; not showy.	Dry-moist, often gravelly prairies; calcareous wooded hills.		Similar to <u>P. incarnata</u> ; needs stratification.
Polygala verticillata var. isocycla	Whorled Milkwort	14-16". Annual; erect and branched stem; linear leaves; cylindrical racemes of white to greenish or occasionally pinkish flowers; July-Oct.	Sandy, often sterile soil of prairies; dry open woods.		Similar to <u>P. incarnata</u> .
Polygonatum canaliculatum (P. commutatum)	Great or Smooth Solomonseal	2-4'. Arching stem with paired lance-shaped leaves from knobby rhizome; 1-8 yellow-green, bell-like flowers hang from axils of leaves; May-July; green berries turning dark blue in fall; very attractive form and used in gardens.	Moist-dry woods, shrub areas, and prairie edges; tolerant.		#1 and 2. Easily propagated by division, readily transplants in early spring or fall; needs stratification.
*Polytaenia nuttallii	Prairie Parsley or Polytaenia	2-3'. Stout erect stem with dissected, pinnately compound leaves; flat umbel of yellow flowers; May and June.	Dry-moist prairies and open woods.	Aug.-Sept.	#3 and 4. Stratify seeds 4 months; rosettes first 2 or 3 years; dies after blooming.
*Potentilla arguta	Tall, Silvery or Prairie Cinquefoil or Potentilla	1-3'. Erect; pinnately compound leaves with 7-11 leaflets; cluster of white to cream flowers; early July to early Aug.	Dry rocky or gravelly soil of woods and dry-mesic prairies.	Oct.	#1-4. Easy by division; helped by stratification; layering.
*Potentilla canadensis	Common or Oldfield Cinquefoil or Potentilla	2-6". Stems first erect and soon becoming creeping; palmately compound leaves with 5 leaflets; single yellow flowers at nodes; May-July.	Dry woods and prairies; sterile fields; acid soil.	Sept.-Oct.	Similar to <u>P. arguta</u> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Potentilla fruticosa	Shrubby Cinquefoil or Potentilla	3'. Bushy shrub with numerous pinnately compound leaves and shredding bark; bright yellow to cream 1" single flowers at ends of the branches; June-Sept.	Wet open areas, bogs, and also dry prairies; likes calcareous soil.	Sept.-Oct.	#1-4. Division; often use cuttings taken in late summer and placed in closed coldframe over winter; can use cuttings in early summer; layering.
Potentilla simplex (P. canadensis by some)	Oldfield or Common Cinquefoil or Potentilla	2-6". Similar to <u>P. canadensis</u> but with leaflets toothed to base and with curved sides; May-July.	Dry woods and gravelly prairies; also dry, sterile open areas.	Sept.	Similar to <u>P. arguta</u> .
Prenanthes aspera	Rough White Rattlesnake-root or Lettuce	3-4'. Erect, rough, hairy stem; leaves rough, widely to narrowly ovate; narrow elongated head crowded with creamy flowers; Aug. to Sept.	Dry prairies; sandy areas.	Oct.	#1-4. Easy from seed; blooms 2nd or 3rd year.
*Prenanthes racemosa	Smooth White Rattlesnake-root or Lettuce	2-4'. Stem erect, smooth; leaves wide and lance-shaped; narrow long head of pink to purplish flowers; Aug.-Sept.	Moist-wet prairies.	Oct.	Similar to <u>P. aspera</u> .
Psoralea argophylla	Silverleaf Scurfpea	1-2'. Erect stem; rhizomes; much branched, densely hairy white stem; dark blue flower cluster; June-July.	Dry prairies.	Sept.-Oct.	#1-4. Division in early spring; inoculate.
*Psoralea esculenta	Prairie Turnip; Indian Breadroot; Pomme de Prairie	10-14". Palmately lobed leaves with 5 leaflets; much branched, hairy stem; dense leafy bracted spike with blue flowers; June-July.	Dry prairies, rocky woods and calcareous hills.	Early Sept.	#1-4. Division in early spring; inoculate.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Psoralea tenuiflora</i>	Slimflower Scurfpea	2-3'. Erect stem, much branched; cloverlike leaves with 3-5 narrowly elliptic leaves; loose racemes of blue flowers extending above upper leaves; mid June to early July.	Dry prairie; infrequent.	Early Sept.	#1-4. Seedlings tend to damp off in coldframe; flowers 2nd year; shoots come up very late in spring; seeds hard to get; division in early spring; inoculate; scarify; cuttings of growing shoots under glass.
<i>Pteridium aquilinum</i> var. <i>latiusculum</i> (<i>P. latiusculum</i>)	Bracken or Brake Fern	2-5'. Underground, creeping rhizome with upright fronds with long stems; blade triangular and much dissected into paired leaflets; spores under fronds.	Dry, often sterile soil of open woods and prairies; sandy soil frequently.		Division of rhizomes; may spread rapidly by rhizomes; easily grown from spores.
<i>Pycnanthemum tenuifolium</i> (<i>P. flexuosum</i>)	Slender or Slender-leaved Mountainmint	20-32". Stems slender, smooth, very leafy; paired leaves linear and smooth; numerous dense heads of white flowers; late July-Sept.	Dry soil of upland woods and prairies; moderately acid soil.	Oct.	#1-4. Easy; also division in early fall or spring; blooms 2nd year and is reliable.
* <i>Pycnanthemum virginianum</i>	Common or Virginia Mountainmint	2-3'. Stem freely branched above middle and very leafy; narrow, aromatic, lance-shaped leaves; heavy cluster of white heads; late July-mid Sept.	Upland woods and dry-moist prairies and calcareous marshes.	Oct.	Similar to <i>P. tenuifolium</i> .
<i>Ranunculus fascicularis</i>	Early or Tufted Buttercup	4-12". Thickened roots; mostly basal leaves, much dissected and longer than wide; long-stemmed yellow flowers; late April-June; attractive.	Prairies and dry woods; thrives in poor, dry-moist soil.	June	#1 and 2. Sown when seed fresh; germinates same season and blooms the following spring; wants short competition; easily divided; no stratification necessary.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Ranunculus rhomboides</i>	Prairie Buttercup	3-8". Several stems from thickened roots; basal leaves ovate to oblong, stem leaves stalkless and divided; few small yellow flowers in May.	Dry or well-drained morainic hills with short plants; now rare.	July	Similar to <i>R. fascicularis</i> .
<i>Ratibida columnifera</i>	Upright, Prairie or Longheaded Coneflower	2-3'. Usually several stems; dissected leaves with linear segments; yellow or rarely brown-purple rays with dark disk in head; July-Aug.; good with competition.	Dry-mesic prairies and dry woods; mainly of West.	Oct.	#1-4. Easy by all methods; reliable; blooms 2nd year.
* <i>Ratibida pinnata</i>	Grayheaded, Yellow or Pinnate Coneflower	3-4'. Hairy stem and leaves; lance-shaped segments to leaves; heads with pale yellow rays and gray disks; July-Aug.; good in large garden with competition.	Dry-wet prairies and dry woods.	Oct.- Nov.	Similar to <i>R. columnifera</i> ; very easy; needs stratification.
* <i>Rosa carolina-blanda complex</i>	Prairie Roses	2-4'. Most with reclining or drooping branches; pink to white blossoms; late May-mid July; spines or prickles.	Dry-moist woods, prairies and dunes.	Oct.	#1-4. Sow or stratify seed at once; most seeds germinate 2nd year; spreads by rhizomes and can be divided.
* <i>Rudbeckia hirta</i>	Hairy Coneflower; Blackeyed Susan	1-3'. Generally biennial; variable leaves chiefly lance-shaped and hairy; dark purple or brown disks and orange to orange-yellow rays; July-Aug.; attractive.	Dry-wet prairies and open woodland; often disturbed areas; prefers dry, poor acid soil.	Sept.- Oct.	#1-4. Best sown as soon as ripe; transplant at end of 1st full year; seed needs no stratification but germination improved by it.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
Rudbeckia subtomentosa	Sweet Coneflower or Blackeyed Susan	3-5'. Stiff erect stem with numerous 3-parted leaves; downy large flower heads with brown disks and yellow rays; Aug. and Sept.	Dry-moist prairies, moist woods and wood edges and stream banks.	Oct.	#1-4. Division in spring; seed needs no treatment; cuttings used.
Ruellia humilis	Hairy Ruellia or Fringeleaf	1-1½'. Stem branched or simple; sessile, paired leaves; pale violet flowers in clusters in axils of upper leaves; mid June to late Aug.; reliable but modest garden plant.	Dry, sandy or gravelly prairies and dry, open upland woods.	Sept.	#1-4. Easy by method #3; division in spring; cuttings in light, rich soil under glass when shoots firm enough.
*Salix humilis	Prairie or Upland Willow	3-8'. Shrub with yellowish to brown branchlets; lance-shaped leaves wider near top; catkins mid April to early May.	Wet-dry prairies, dry barrens and open woods.	May	Plant seeds as soon as the capsule opens or seeds may dry out; seedlings survive poorly; cuttings more difficult to root than some willows.
*Saxifraga pennsylvanica	Swamp or Pennsylvania Saxifrage	1-3'. Leaves all basal; flower stem 3-8"; large panicle of small greenish white or purplish flowers; May and June.	Wet-mesic prairies, bogs in dunes and calcareous moist open areas.	Aug.	#1-4. Can divide in spring; cuttings in spring and early summer or fall; harmed by stratification.
Scleria triglomerata	Tall Nutrush or Whip	2-3'. Narrow downy blades; few compact green flower heads; achenes white, rarely gray.	Calcareous prairies and moist, sandy open areas.		

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Scutellaria parvula (S. leonardi)	Small Skullcap	4-8" Erect, downy 4-angled stems, usually several from the rhizome; paired ovate leaves, hairy above; axillary flowers, small and purplish-blue; early and mid-June.	Gravelly and limestone prairies; dry upland woods.	July	#3 and 4. Easily grown; seedlings of coldframe permanently planted in fall or following spring; division of old species; cuttings made from young 2" spring shoots which are placed in sand or vermiculite.
Senecio aureus	Golden Ragwort	10-18". Rosette of round leaves; several stems with 1" daisy-like golden flowers; early to mid-June.	Wet meadows; moist cliffs and low, wet woods.	July-Aug.	#1-4. Self sows; can divide clumps.
Senecio pauperculus	Balsam Groundsel or Ragwort	4-20". Fibrous roots but sometimes stolons; basal leaves which are elliptical; few heads with yellow daisy-like flowers; late May to late June.	Moist prairies; moist, sandy flats; stream banks, beaches and cliffs.	July	#3 and 4. Needs rich, moist soil; readily self sows; division easy in early spring; blooms 2nd year; has not survived continuous competition.
Senecio plattensis	Prairie Groundsel or Ragwort	8-28". Fibrous roots; sometimes stolons; elliptical basal leaves that are downy; several to numerous heads with yellow rays; late May to late June.	Dry, often sandy prairies and sandy woods.	July	Similar to <u>S. pauperculus</u> .
*Silphium integrifolium	Wholeleaf Rosinweed	3-5'. Woody rhizome; coarse paired, rough sessile leaves; several heads with yellow rays; mid July to late Aug.; coarse and weedy.	Dry-moist prairies.	Late Sept.	#1-4. Easy; all methods effective but needs competition; blooms 2nd year; reliable; seeds need only cold stratification.
*Silphium laciniatum	Compassplant	4-8'. Woody taproot; large alternate, hairy leaves deeply lobed; cluster of yellow heads on tall, bristly, stout stems; leaves prized for arrangements; for large, wide gardens; late June to early Aug.	Moist-dry prairies.	Early Oct.	Similar to <u>S. integrifolium</u> ; blooms 3rd or 4th year; only 1 true leaf the 1st year; cold stratification only.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Silphium perfoliatum</i>	Cupplant; Cup Rosinweed; Indian Cup	3-6'. Square, stout, smooth stem with paired ovate leaves that join at their bases; 2-3" yellow daisy-like flowers in open cluster; July-Sept.	Rich woodlands and moist-mesic prairies.	Oct.	#1-4. Also division of old clumps; only cold stratification.
* <i>Silphium terebinth-naceum</i>	Prairiedock; Dock Rosinweed	5-7'. Coarse woody taproot; smooth, almost bare stem; large arrow-shaped leaves; open cluster of yellow, daisy-like flowers; early July to early Sept.; interesting in garden.	Dry-moist prairies.	Oct.	Same as <i>S. integrifolium</i> .
<i>Sisyrinchium albidum</i>	Common or Pale Blue-eyed Grass	6-10". Pale green, grass-like leaves; cluster of delicate white to violet flowers; mid May to mid June.	Dry-mesic prairies, sandy places and open woodlands.	July	#1-4. Easily grown; reliable; blooms 2nd year; easily divided in spring; easily transplanted; can be divided after 1st growing season; needs only cold stratification.
* <i>Sisyrinchium campestre</i>	Blue-eyed Grass	6-10". Pale green plant with grass-like leaves; cluster of delicate, pale blue or white flowers; mid May to mid June.	Dry-moist prairies, often sandy areas, and open woodlands; rare plant.	July	Similar to <i>S. albidum</i> .
* <i>Smilacina stellata</i>	Starry False Solomonseal	8-24". Stem ascending with slight curve from creeping rhizome; horizontal, lance-shaped leaves; small cluster of white flowers; May and June; black or green berries striped black; July-Sept.; good garden ground cover.	Moist-mesic prairies, often sandy soil of woods, shores, and prairies; endures dry areas.	Sept.	#1 and 2. Division in fall or spring; easily transplanted; readily grown.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Solidago altissima</i> (some consider this a form of <i>S. canadensis</i>)	Tall Goldenrod	3-6'. Creeping rhizomes; densely hairy or downy tall stem; narrow leaves which are rough on upper side and downy on lower side and usually lack teeth; 3 main veins; plumelike, large cluster of yellow flower heads; late Aug. to Oct.; used in garden but may spread rapidly and get weedy.	Moist-dry prairies and thin woods; can be weedy.	Oct.- Nov.	#1-4. Easy by all methods; easily divided and transplanted in fall or spring; only needs cold stratification; spreads readily.
* <i>Solidago canadensis</i>	Canada Goldenrod	1-4'. Creeping rhizomes; much like <i>S. altissima</i> but leaves generally sharply toothed and individual heads smaller; blooms Aug.-Sept.; somewhat coarse and weedy.	Moist-dry prairies.	Oct.- Nov.	Similar to <i>S. altissima</i> .
* <i>Solidago gigantea</i>	Late or Giant or Smooth-stemmed Goldenrod	2-6'. Creeping rhizomes; stout smooth stem; similar to <i>S. altissima</i> but leaves with fine teeth and foliage smooth; plumelike large flower cluster; Aug.-Oct.	Moist-wet prairies.	Oct.- Nov.	Similar to <i>S. altissima</i> .
* <i>Solidago graminifolia</i>	Grassleaf or Narrow-leaf Goldenrod	2-5'. Smooth or hairy stem; grass-like densely hairy leaves; flat, fragrant, yellow bloom; Aug.-Oct.; used in wild garden but may become weedy.	Moist-mesic prairies and wet shore areas and marshes; moderately acid soil.	Oct.- Nov.	#1, 2 and 4. Easily divided.
* <i>Solidago juncea</i>	Early Goldenrod	2-4'. Usually creeping rhizomes; tuft of large basal leaves; slim, stalkless, smooth leaves; compact, plumelike yellow bloom; July-Sept.; can use in garden.	Dry prairies, often disturbed types, and open woods; acid soil.	Early Oct.	Similar to <i>S. altissima</i> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Solidago missouriensis var. fasciculata	Missouri Goldenrod	1-3'. Creeping rhizomes; similar to <u>S. altissima</u> but entirely smooth foliage; plume-like yellow bloom; Aug.-Oct.	Dry-mesic prairies and open woods; usually disturbed areas.	Oct.	Similar to <u>S. altissima</u> .
*Solidago nemoralis	Oldfield or Field or Gray Goldenrod	1-3'. Densely downy stems and leaves; basal rosette of large spatula-shaped, broad, firm leaves; rather narrow yellow bloom, often one sided; Aug.-Oct.; good for sunny borders.	Dry woods, dry prairies, fallow or sandy open areas and disturbed areas.	Oct.	Similar to <u>S. altissima</u> .
Solidago ohioensis	Ohio Goldenrod	1-3'. Slender smooth stem; long-stalked basal leaves; smaller, stemless, upright stem-leaves; flat yellow bloom with many flower heads; Aug.-Sept.	Moist-wet prairies, swamps and beaches.	Oct.	#1, 2 and 4. Easily divided.
Solidago riddellii	Riddell's Goldenrod	2-3'. Stout smooth stem; long narrow basal leaves and smooth, linear, 3-nerved leaves that bend outward; dome-shaped yellow bloom; early Sept. to early Oct.; attractive foliage.	Moist calcareous and mesic-wet prairies and swamps.	Oct.	#1, 2 and 4. Easy; easily divided; needs only cold stratification.
*Solidago rigida	Rigid, Stiff or Gray Goldenrod	2-4'. Rough stem; conspicuous, toothed, rough, long-stemmed, basal leaves; smaller, oval rigid, upper leaves; large dome-shaped, yellow bloom; late Aug. to early Oct.; too coarse for garden.	Dry-mesic prairies; neutral soil.	Oct.	#1-4. Easy by all methods; quickly established; easily divided; needs only cold stratification.
*Solidago speciosa	Showy Goldenrod	2-6'. Stout reddish stem; broad, firm basal and lower leaves which rapidly taper; numerous firm upper leaves; showy, long, cylindrical dense, yellow bloom of large flower heads; Aug.-Oct.; one of showiest and good in large garden.	Dry-mesic prairies, often sandy, and in open sandy woods; neutral soil, sandy or rather rich.	Oct.	#1-4. Easy by all methods; easy to divide; needs only cold stratification.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
*Sorghastrum nutans	Indiangrass	3-5'. Forms large clumps with attractive narrow panicles when in bloom and in fruit; good bronze fall color; blooms late Aug. to mid Sept.; decorative; best fuel on prairie.	Moist-dry prairies.	Oct.	#1-4. Blooms late in 1st year; seed needs only cold stratification.
*Spartina pectinata	Prairie Cordgrass; Sloughgrass	3-6'. Erect reed-like with very long leaf blades; terminal panicle long and with numerous spikes; early July to late Aug.	Wet-mesic prairies, marshes and shores.	Late Oct.	#3 and 4. Viability low; grows fast and blooms late 1st year; rhizomes soon form colonies; readily divided; only needs cold stratification.
Specularia perfoliata (Now Triodanis perfoliata)	Venus' Looking-glass	1-3'. Annual. Erect and little branched; angular stems; numerous rounded leaves clasping stem; flowers in axils of leaves; upper flowers open with small blue petals; June-Aug.	Open sandy or sterile areas; disturbed areas.	Oct.	#1-4. Easy.
Sphenopholis intermedia	Slender Wedgescale	2-4'. Tufts of stems with flat soft leaves, slender elongated cluster of spikelets.	Moist prairies and wet areas.		#1-4.
*Spiraea alba	Narrowleaf Meadowsweet; Queen of the Meadow	3-5'. Shrub with brown twigs; narrow, smooth, lance-shaped leaves; terminal cluster of white flowers; July-Aug.	Wet-moist prairies, swamps and shores.	Oct.	#1 and 2. Sow seed outdoors as soon as ripe or stratify immediately; move 2nd spring; can be divided; summer cuttings of mature or green wood; green cuttings best and put under glass.
Spiraea tomentosa	Hardhack Steeplebush	2-4'. Wooly brown stemmed shrub; leaves wooly white below spire shaped, rosy terminal flower clusters; July-Aug.	Moist open areas and thickets; likes acid soil.		#1-4. Seeds lightly covered; hardwood or greenwood cuttings.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Spiranthes cernua</i>	Nodding Ladies-tresses	1-2'. Erect with fleshy roots; narrow leaves mostly near base, up to 12" long; dense spiralling raceme of creamy flowers in 3 ranks; late Aug. and Sept.	Wet-dry prairies, bogs and shores; moderately or strongly acid to calcareous soil.	Oct.	#1-4. Flowers in 3 years; division of rootstock in spring when new growth is about to begin; not difficult to transplant.
<i>Sporobolus asper</i>	Rough Dropseed	1-3'. Stout stem with clasping leaves equally long; panicles partly included in sheath; Aug.-Oct.	Dry open areas including railroads and roads; often weed in disturbed areas.	Oct.	#1-4.
<i>Sporobolus cryptandrus</i>	Sand Dropseed	2-3'. Stems single or in clumps; flat leaf blades with long points; ovoid cluster of spikelets.	Dry, especially sandy soil of prairies, disturbed areas and sparse woodland.		#1-4. Blooms 1st year if planted early; seed needs no treatment.
* <i>Sporobolus heterolepis</i>	Prairie Dropseed	2-3'. Erect with very long, narrow leaf blades, loose panicle of spikelets; most ornamental of all our grasses and good in garden; August.	Dry-moist prairies.	Oct.	#1-4. Similar to <i>S. cryptandrus</i> ; seeds need no treatment.
<i>Stachys palustris</i> var. <i>homotricha</i>	Marsh Betony; Woundwort; Hedge Nettle	2-3'. Erect stems seldom branched; paired lance-shaped leaves; pink flowers in terminal whorls; rank smelling; Aug. to Sept.	Wet-mesic prairies; beaches and banks.	Oct.	#1-4. Readily increased by division in fall or spring; cuttings can be used.
* <i>Stipa spartea</i>	Porcupine-grass or Needlegrass	2-4'. Stems in small clumps; narrow panicle somewhat nodding with scattered spikelets; mid-June.	Dry prairies and open woods.	About July 1	#1-4. Blooms 2nd year; short lived if grown by #3; needs stratification; can be divided.
<i>Stipa viridula</i>	Green Needlegrass	2-3'. Loosely clumped; compact panicles; mid-June.	Dry prairies may be adventive.		#1-4. Similar to <i>S. spartea</i> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
<i>Taenidia integerrima</i>	Yellow Pimpernel or <i>Taenidia</i>	2-3'. Slender, smooth, open branched with thrice compounded leaves; flat cluster of small yellow flowers; June; can be used in garden.	Dry-mesic prairies and rocky places and wooded slopes and edges.	July	
* <i>Tephrosia virginiana</i>	Goatsrue; Hoary Pea	1-2'. Erect stem with numerous compound leaves; silky hair; single terminal raceme of pink and yellow, pea-like flowers; June and July; attractive.	Dry-mesic prairies, open woods and dunes; often sandy or dry acid soil.	Aug.	#1-4. Needs dry soil; scarify.
<i>Teucrium canadense</i>	American Germander	2-3'. Slender rhizome; erect, downy stem; paired narrow lance-shaped leaves; purple to cream colored flowers in long cylindrical cluster; July and Aug.	Wet-moist prairies.	Oct.	#3 and 4. Sandy soil advised; cuttings; division of plant or of rhizomes.
* <i>Thalictrum dasycarpum</i>	Purple or Tall Meadowrue	3-4'. Erect purple stems with airy compound leaves; white and purple flowers in showy loose cluster; June and July; attractive garden plant.	Wet-mesic prairies, shores and stream banks.	Aug.-Sept.	#3 and 4. Sow in sandy soil in coldframe; seedlings transplanted to rich soil when 1-2" high; division in fall or early spring; needs stratification.
<i>Thalictrum revolutum</i>	Purple or Waxy Meadowrue	3'. Stout erect stem; leaves divided in variable-shaped leaflets; June and July.	Dry mesic open woods; dry mesic prairies and barrens.	Aug.-Sept.	Same as <i>T. dasycarpum</i> .
<i>Thaspium trifoliatum</i>	Meadow Parsnip	1-2'. Erect smooth stem, little branched; compound leaves, except basal ones; flat cluster of yellow flowers; June-July.	Dry moist woods, edges and openings.	Aug.-Sept.	#1-4. Easily grown.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Tradescantia ohimensis</i>	Common or Ohio Spiderwort	2-3'. Slender, straight, smooth stem, often branched; narrow linear smooth leaves; terminal clusters of blue to rose flowers; June to Aug.; good in garden.	Disturbed mesic-wet prairies and edges and sandy open woods.	Aug.-Sept.	#1. Seeds sown when fresh; self-sown readily; easily grown; easy by division in spring or early fall; usually cuttings of growing shoots taken in summer.
<i>Valeriana ciliata</i>	Valerian	2-4'. Thick vertical root; 3 pairs of thick leaves deeply lobed; hairy elongated terminal cluster of yellowish-white flowers; mid May to early June; plant stinks.	Wet-moist prairies and swamps; alkaline soil.	Late June	#1 and 2. Sow seeds when fresh; transplant seedlings in a few weeks to field; will bloom next spring; reliable; can divide.
<i>Verbena hastata</i>	Blue or Erect Vervain or Verbena	2-4'. Erect and branched above; lance-shaped leaves, numerous terminal spikes with a few blue to blue-violet flowers on each; June-Sept.; somewhat weedy, but good in background.	Moist-mesic prairies and swamps.	Oct.	#1-4. Easily grown; easy by division; cuttings in spring or from new growth in Sept. after cutting back old upper stems; seeds need only cold stratification.
* <i>Verbena stricta</i>	Hoary or Blue Vervain or Verbena	2-3'. Erect and sometimes branched; downy foliage; many ovate, toothed, paired leaves; one to several spikes with a small number of deep blue to purple flowers blooming at one time; June-Sept.	Mesic-dry prairies and barrens.	Oct.	Same as <i>V. hastata</i> ; somewhat weedy.
<i>Vernonia fasciculata</i>	Common or Western Ironweed	2-4'. Erect red or purple stem; narrow smooth lance-shaped leaves; flat bloom of numerous deep purple heads; late July to late Aug.; too coarse for garden.	Wet-moist prairies and marshes.	Oct.	#1-4. Easily grown; transplant in spring or late fall; mostly by division in spring; cuttings in early summer; needs only cold stratification.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Veronicastrum virginicum</i>	Culversroot; Culversphysic	3-5'. Erect with few branches; 3-6 leaves in whorls; several elongated clusters of white flowers at terminals; early July to early Aug.; attractive.	Mesic-wet prairies; prefers moderately moist acid soil; occasionally in sand prairie and open woods.	Oct.	#1-4. Easily grown; reliable in field but not in nursery; easily divided in spring or fall; cuttings taken in summer.
* <i>Vicia americana</i>	American Vetch	2-3'. Stems climbing or trailing; 8-14 pairs of leaflets; long cluster of blue-purple pealike flowers; May to Aug.	Dry-moist prairies and shores.		#1-4. Easily grown but short lived; inoculate; best sown where plants are to grow.
<i>Viola lanceolata</i>	Lance-leaved Violet	2-4". Slender creeping rhizome; leaf blades narrow and erect with lance-shaped leaves opening to base; long stemmed white flowers with brown-purple veins; April-July; interesting and distinct.	Wet prairies, bogs and shores with limited competition.	Aug.	#1 and 2. Easily grown; readily divided.
<i>Viola papilionacea</i>	Common Blue or Smooth Blue Violet; Meadow Violet	3-8". Branching rhizomes form colonies; large heart-shaped leaves up to 5" wide; rich violet flowers with white centers on long stems; April-June; var. <i>priceana</i> often called "Confederate Violet"; attractive but invasive if not controlled.	Woods and degraded moist-mesic prairies.	July	#1 and 2. Easily grown; easily divided throughout year; cleistogamous flowers produce seed after regular bloom; seeds have short viability; seed needs only cold stratification.

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Viola pedata</i> var. <i>lineariloba</i>	Birdsfoot or Pansy Violet	3-6". Erect rhizome with tuft of attractive, deeply cut leaves; foliage disappears in summer and develops again in fall; large showy flowers usually with violet upper petals and purple-lilac lower petals; also varieties <u>alba</u> , <u>bicolor</u> and <u>lineariloba</u> ; plant very desirable but only for dry poorer acid soil; good in rock garden; blooms May-June.	Dry prairies, high dunes and open woods; needs lean, mesic-dry acid soil.	July	#1 and 2. Can divide after blooming, cutting out a center core; transplant carefully after blooming; root cuttings can be made; no cleistogamous flowers; seed only needs cold stratification; easiest from seed.
* <i>Viola pedatifida</i>	Prairie or Larkspur Violet	3-6". Similar to <u>V. pedata</u> but usually with less divided leaves and with a little smaller flower; blooms May and June; attractive.	Dry-mesic prairies and open woodland; likes well-drained humus soil, neutral or a little acid.	July	#1 and 2. Plant seed while fresh; easily divided; short-lived in cultivation; easiest from soft cuttings in July and Aug.; cleistogamous flowers produce seed after regular bloom; seed only needs cold stratification.
<i>Viola sagittata</i>	Arrowleaf Violet	2-5". Small with narrow lance-shaped leaves with longer leaf stems; rich violet-purple, 1" flowers with dark veined lower petals and white centers; May and June.	Dry prairies and sterile open places.	July	Same as <u>V. papilionacea</u> .
<i>Viola sororia</i>	Hairy Blue Or Wood Violet	3-4". Common violet of meadows and open woods; similar to <u>V. papilionacea</u> but hairy, deep purple flowers on short stems; May and June.	Moist-dry degraded prairies and woods; sandy to rich soil.	July	Same as <u>V. papilionacea</u> .

SCIENTIFIC NAME	COMMON NAME	DESCRIPTION	HABITAT	HARVEST	PROPAGATION METHODS
* <i>Vitis vulpina</i>	Riverbank or Frost Grape	Vine. Vigorous and tall climbing or prostrate with bright green, smooth, sharply toothed leaves; sweet scented white flowers in June; blue-black berries in Sept.; spreads widely and needs controlling.	Moist-mesic open woods and prairies.	Sept.	#1-4. Hardwood cuttings; layering.
<i>Vulpia octoflora</i> var. <i>tenella</i> (<i>Festuca octoflora</i>)	Slender Fesque	6-16". Slender, erect stems, often tufted; narrow, short linear leaves; slender panicle with a few ascending branches; June.	Dry or sterile open soil; sandy, disturbed areas.		#1-4.
<i>Wulfenia bullii</i> (<i>Besseyia bullii</i>)	Wulfenia; Kittentails	1'. Rosette of 3-5" oval basal leaves; unbranched stem with scale leaves; dense terminal spike-like cluster of small yellow flowers; May; rare and local.	Gravelly or clayey prairies and barrens.		#3 and 4. Division of roots in spring.
<i>Zigadenus elegans</i> (<i>Zygadenus elegans</i>)	White Camass; Alkaligrass	1-3'. Bulb with grasslike leaves and flowering stem with slender, loose, cylindrical clump of greenish-white flowers in June and July.	Calcareous prairies and calcareous rocks; prefers moist-semi-shade; chiefly western.		Rarely grown from seed; increased by division of rhizomes.
* <i>Zizea aptera</i>	Heartleaved Meadow Parsnip	1-2'. Basal leaves, ovate and long stemmed; stem leaves divided into 3 or 6 leaflets; flat cluster of yellow flowers in May and June.	Moist-dry prairies and open woods.	Sept.	#1 and 2. Seeds sown when fresh; division in spring; needs long stratification; blooms 2nd year.
* <i>Zizea aurea</i>	Golden Alexanders	1-2'. Stem branched and usually with leaves divided into 3 to 6 leaflets; terminal flat clusters of yellow flowers; somewhat weedy; May and June.	Moist-mesic prairies and wood edges.	Sept.	#1 and 2. Similar to <u>Z. aptera</u> .

ATTRACTIVE WILD FLOWERS FOR THE PRAIRIE GARDEN

(in order of bloom)

MAY

Pasqueflower (*Anemone patens*) 4-10"; early May; D-Av.
 Pussytoes (*Antennaria* sp.) 4-12"; May; D-Av.
 Bluets (*Houstonia caerulea*) 2-6"; May-early June; M-Av.
 Sedge (*Carex* sp.) 6-30"; W or D
 Birdsfoot Violet (*Viola pedata*) 3-6"; May-June; Dry acid
 Hairy Blue Violet (*Viola sororia*) 3-4"; May & June; M-D
 Hoary Puccoon (*Lithospermum canescens*) 8-12"; May-mid June; D
 Yellowstar Grass (*Hypoxis hirsuta*) 3-7"; May-July; W-D, acid
 Blue-eyed Grass (*Sisyrinchium campestre*) 6-10"; mid May to mid June; D-M
 Bastard Toadflax (*Commandra richardsoniana*) 6-12"; May & June; W-Av.
 Heartleaf Meadow Parsnip (*Zizia aptera*) 1-2'; May & June; M-D
 Golden Alexander (*Zizia aurea*) 1-2'; May & June; M-Av.
 Prairie Violet (*Viola pedatifida*) 3-6"; May & June; D-Av.; woodland
 Arrowleaf Violet (*Viola sagittata*) 2-5"; May & June; D; sterile soil
 Wild Strawberry (*Fragaria virginiana*) 5-8"; May & June; D-M
 Little White Lady'slipper (*Cypripedium candidum*) 8-16"; May & June; W-M; alkaline
 Midland Shootingstar (*Dodocatheon media*) 1'; May-early June; D-W
 Prairie Phlox (*Phlox pilosa*) 1-2'; May & June; D-W; acid
 Wild Hyacinth (*Camassia scilloides*) 1-2'; late May-early June; Av-W; woods
 Swamp Saxifrage (*Saxifraga pennsylvanica*) 1-3'; May & June; W-Av; prairies, bogs, dunes

JUNE

Wild Blueflag (*Iris virginica shrevei*) 2-3'; early June-July; W-Av; marshes
 Lanceleaved Coreopsis (*Coreopsis lanceolata*) 1-2'; early June-July; D; sandy
 Canada Anemone (*Anemone canadensis*) 1-2'; June-early July; M-Av; woods
 Common Spiderwort (*Tradescantia ohimensis*) 2-3'; June & July; M-W; woods
 Golden Ragwort (*Senecio aureus*) 1-2½'; early to late June; W-M; wet woods & cliffs
 Prairie Smoke (*Geum triflorum*) 1'; early to mid-June; D-M; thrives in poor soil
 Wood Lily (*Lilium philadelphicum*) 18-30"; June; D-Av
 Indian Paintbrush (*Castilleja coccinea*) 12-18"; June & July; M-Av; woods and prairie
 Blue False Indigo (*Baptisia australis*) 2-4'; June; Av-M
 Wood Mint (*Blephilia ciliata*) 1-3'; June and early July; D-M; limestone glades and woods
 Pale Penstemon (*Penstemon pallidus*) 1-3'; early to late July; D; calcareous soil
 Cream False Indigo (*Baptisia leucophaea*) 1-2½'; June; M-D
 Hairy Penstemon (*Penstemon hirsutus*) 1-2'; June-July; D
 Smooth Penstemon (*Penstemon digitalis*) 3-5'; mid to late June; D-M; woods
 Alumroot (*Heuchera richardsonia*) 2-3'; June and early July; D-W
 Purple Meadowrue (*Thalictrum dasycarpum*) 3-4'; mid-June-July; W-M
 Prairie Rose (*Rosa* sp.) 2-4'; erect or reclining; mid-June; D-M
 Prairie Anemone (*Anemone cylindrica*) 1-1½'; June-July; D-M
 Prairie Larkspur (*Delphinium virescens*) 2-3'; June-July; D-Av.
 Queen of the Prairie (*Filipendula rubra*) 3-6'; June-August; W-M; shrubs and woods
 White Wild Indigo (*Baptisia leucantha*) 2-4'; late June to early July; M-D
 Pale Spike Lobelia (*Lobelia spicata*) 1-3'; mid-June to early July; W-D; also sandy areas
 Canada Frostweed (*Helianthemum canadense*) 8-16"; June; D; dry, often sand prairies and woods

sp. - species
 D - dry prairie
 M - moist prairie

W - wet prairie
 AV - average or mesic prairie
 Woods - always of open type

ATTRACTIVE WILD FLOWERS FOR THE PRAIRIE GARDEN (cont.)

JUNE (cont.)

American Vetch (*Vicia americana*) 2-3'; late June-August; D-M
 Flowering Spurge (*Euphorbia corollata*) 2-3'; late June-July; D-M
 Butterfly Milkweed (*Asclepias tuberosa*) 1-2'; late June-late August; D-M
 Seneca Snakeroot (*Polygala senega*) 16-20"; late June-July; D-M
 Wild Quinine (*Parthenium integrifolium*) 2-3'; late June-early August; D-M
 Blackeyed Susan (*Rudbeckia hirta*) 1-3'; late June-August; D-W
 Prairie Coreopsis (*Coreopsis palmata*) 1½-3'; late June-July; M; woods
 Great Solomonseal (*Polygonatum canaliculatum*) 2-4'; June-July; M-D; shrubs and woods
 Goatsrue (*Tephrosia virginiana*) 1-2'; late June-July; D-Av; sand, woods
 Small Sundrops (*Oenothera perennis*) 1-2'; late June-July; W-D; prairie and woods
 Smooth Phlox (*Phlox glaberrima*) 2-3'; late June-August; M-Av; prairie and woods

JULY

Leadplant (*Amorpha canescens*) 1½-3'; July; D-M; woods
 Prairiedock (*Silphium terebinthinaceum*) 5-7'; early July-early Sept.; D-M
 Rattlesnake Master (*Eryngium yuccifolium*) 4-7'; mid July-early Aug.; M-D
 Compass Plant (*Silphium laciniatum*) 4-8'; mid July-early Aug.; M-D
 Culversroot (*Veronicastrum virginicum*) 3-5'; mid July-early Aug.; Av-W
 Swamp Milkweed (*Asclepias incaranta*) 2-4'; July-Aug.; W; marshes
 Common Milkweed (*Asclepias syriaca*) 2-4'; July-Aug.; W; marshes
 Violet Wood Sorrel (*Oxalis violacea*) 4-8"; July; D-Av; woods
 Whorled Milkweed (*Asclepias verticilla*) 8-20"; July; D-M
 Mt. Mint (*Pycnanthemum virginianum*) 2-3'; mid-July; D-M
 Purple Monarda (*Monarda fistulosa*) 2-3'; mid-July; W-D; woods
 Greyheaded Coneflower (*Ratibida pinnata*) 3-4"; July and Aug.; D-W; dry woods
 Purple Coneflower (*Echinacea purpurea*) 2-4'; late July; D; woods
 Longheaded Coneflower (*Ratibida columnifera*) 2-3'; July-Aug.; D-Av; woods
 Showy Ticktrefoil (*Desmodium canadense*) 2-4'; July-Aug.; Av-W; woods
 Early Goldenrod (*Solidago juncea*) 2-4'; late July-Aug.; D; woods
 Nodding Wild Onion (*Allium cernuum*) 1-2'; late July; M-Av
 Cupplant (*Silphium perfoliatum*) 3-6'; July-Aug.; M-Av; rich woods
 Prairie Blazingstar (*Liatris pycnostachya*) 2-4'; late July; W-D
 Michigan Lily (*Lilium michiganense*) 2-6'; late July-early Aug.; W-Av; woods
 Purple Prairie Clover (*Petalostemum purpureum*) 1-3'; late July; D-Av
 White Prairie Clover (*Petalostemum candidum*) 1-3'; late July; D-Av
 Dense Blazingstar (*Liatris spicata*) 2-5'; late July-Aug.; W-Av
 Sneezeweed or Helensflower (*Helenium autumnale*) 2-4'; late July-Sept.; M-Av
 Largeleaved Penstemon (*Penstemon grandiflora*) 2-4'; July-Aug.; D; dry barrens and prairies
 Blood Milkwort (*Polygala sanguinea*) 1-1½'; July-Aug.; D; dry, sandy, sterile and acid

AUGUST

False Dragonhead (*Physostegia virginiana*) 2-3'; early Aug.; M-Av
 Rough Blazingstar (*Liatris aspera*) 1½-3'; mid-Aug.; Av-D; sandy soil
 Rocky Mt. Blazingstar (*Liatris ligulstylis*) 1-2'; Aug.; M-Av
 Cylindric Blazingstar (*Liatris cylindracea*) 1-2'; Aug.; D; limy or sandy soil
 Western Sunflower (*Helianthus occidentalis*) 1-3'; mid-Aug.-Sept.; D-Av
 Showy Goldenrod (*Solidago speciosa*) 2-5'; mid-Aug.-Sept.; D-Av; sand; woods
 Tall, Giant and Canada Goldenrods (*Solidago altissima*, *S. gigantea*,
S. canadensis) 2-6'; mid-Aug.; M-D
 Missouri Goldenrod (*Solidago missouriensis*) 1-3'; mid-Aug.; D-Av; woods
 Grassleaf Goldenrod (*Solidago graminifolia*) 2-5'; late Aug.; M-Av
 Oldfield Goldenrod (*Solidago nemoralis*) 1-3'; late Aug.; D; poor soil
 Rigid Goldenrod (*Solidago rigida*) 2-4'; late Aug.; D-Av
 Hairy White Aster (*Aster pilosus*) 1-4'; late Aug.; D-M; disturbed soil
 White Upland Aster (*Aster ptarmicoides*) 1-2'; late Aug.; D; gravelly
 Arrow-leaved Aster (*Aster sagittifolius*) 1-4'; late Aug.; D; disturbed
 Downy Sunflower (*Helianthus mollis*) 2-4'; Aug.-Sept.; D; dry barren prairies

SEPTEMBER

New England Aster (*Aster novae-angliae*) 1-4'; early Sept.-Oct.; M-Av; woodland
 Azure Aster (*Aster azureus*) 1-4'; early Sept.-mid Oct.; Av-D; sandy soil
 Smooth Aster (*Aster laevis*) 1-3'; early Sept.-early Oct.; D-M; wood edges
 Savory-leaf Aster (*Aster linarifolius*) 6-20"; Sept.-Oct.; D; sandy soil; woods
 Bottle Gentian (*Gentiana andrewsii*) 1-2'; mid-Sept.; W-Av
 Heath Aster (*Aster ericoides*) 1-3'; late Sept.-Oct.; D-Av
 Fringed Gentian (*Gentiana crinata*) 6-18"; late Sept.-Oct.; Av-W; woods

GRASSES

Big Bluestem (*Andropogon gerardi*) 4-6'; M-D; tall clumps or sods
 Little Bluestem (*Andropogon scoparius*) 2-4'; M-D; attractive tufts,
 excellent fall color
 Sideoats Grama (*Bouteloua curtipendula*) 1-3'; D; ornamental clumps
 Junegrass (*Koeleria cristata*) 1-2'; tufts with attractive seed heads
 Switchgrass (*Panicum virgatum*) 3-4'; M-Av; attractive seed heads
 Indiangrass (*Sorghastrum nutans*) 4-6'; tall clumps; good fall and winter form
 Cordgrass (*Spartina pectinata*) 3-7'; W-M; marsh
 Prairie Dropseed (*Sporobolus heterolepis*) 2-3'; D-M; very ornamental clumps
 Needlegrass (*Stipa spartea*) 2-4'; D; woods; small clumps

FERNS

Marsh Fern (*Dryopteris thelypteris*) 1-2½'; W-Av; swamps, wet woods
 Bracken or Brake Fern (*Pteridium aquilinum* var. *latiusculum*) 2-5'; D; sand,
 dry woods

In a formal or naturalized garden area, blooms can occur throughout the season. However, the greatest mass of bloom is in July and August with a very colorful late summer and fall appearance. This suggests wider use of prairies along our highways. Prairies are beautiful, tough and enduring.

Conley's Garden Center, Inc. Boothbay Harbor, ME 04538 (catalog 50¢)
 Environmental Seed Producers, Inc., P.O. Box 5904, El Monte, CA 91734
 Garden of the Blue Ridge, P.O. Box 10, Pineola, NC 28662
 Great Lakes Wildflowers, Box 1923, Milwaukee, WI 53201
 Horizon Seed, Inc., 1540 Cornhusker Highway, P.O. Box 81823, Lincoln, NB 68501
 Illini Gardens, P.O. Box 125, Oakford, IL 62673
 Kesters Wild Game Food Nurseries, Inc., P.O. Box V, Omro, WI 54963
 La Fayette Home Nursery, Inc., La Fayette, IL 61449
 Lakeland Nurseries Sales, 340 Poplar St., Hanover, PA 17331
 Little Valley Farm, R.R. 1, Box 287, Richland Center, WI 53581
 Midwest Wildflowers, Box 64, Rockton, IL 61072
 Native Plants, 360 Wakara Way, Salt Lake City, UT 84108
 Natural Habitat Nursery, 4818 Terminal Rd., McFarland, WI 53558
 Prairie Associates, c/o David M. Peterson, 6328 Piping Rock Rd., Madison, WI 53711
 Prairie Nursery (J.P. Smith), Rt. 1, Westfield, WI 53964
 Prairie Ridge Nursery, R.R. 29738 Overland Rd., Mt. Horeb, WI 53572
 Prairie Restoration, Inc., P.O. Box 327, Princeton, MN 55371
 Prairie Seed Source, P.O. Box 83, North Lake, WI 53064
 Sinclair, Francis M., R.F.D. #2, Newfields Rd., Exeter, NH 03833
 Stock Seed Farms, Inc., R.R. Box 112, Murdock, NB 68407
 Stoney Brook Prairie Nursery, 143 Adams Street, Waterloo, WI 53594
 Wehr Nature Center, 5879 S. 92nd St., Hales Corners, WI 53130 (mixed prairie seed only)
 Wildlife Nurseries, P.O. Box 2723, Oshkosh, WI 54903 (wetland/aquatic plants and seeds)
 Windrift Prairie Nursery, Rt. 2, Oregon, IL 61061 (catalog is 30¢ in stamps)
 Woodland Acres Nursery, Rt. 2, Crivitz, WI 54114 (catalog is 25¢)

NATIVE GRASS SEED SOURCES

L.L. Olds Seed Co., P.O. Box 7790, Madison, WI 53707
 Clyde Robin Seed Co., Inc., Box 2855, Castro Valley, CA 94546 (catalog is \$2)
 Sharp Bros. Seed Co., Healy, KS 67850

The above list does not imply any recommendation or endorsement.
 Additional suggested sources would be appreciated.

- The Concise Encyclopedia of Favorite Wildflowers, Marjorie J. Dietz (Doubleday)
- *A Field Guide to Wildflowers, R.T. Peterson & McKenny (Houghton-Mifflin, Boston)
- *Grasses of Wisconsin, Fasset (University of Wisconsin Press, Madison, WI)
- Growing Wildflowers, Marie Sperka (Harper & Row, NY 1973)
- Growing Woodland Plants, C & E Birdseye (Dover Publications, NY)
- Just Weeds, Edwin R. Spencer (Charles Scribner's & Sons, NY)
- Newcomb's Wildflower Guide, L. Newcomb (Little, Brown & Co., Boston 1976)
- Prairie Primer, Nichols and Entine (University of Wisconsin-Extension, Madison, WI 1978)
- *Prairie Propagation Handbook, Harold W. Rock (Milwaukee County Dept. of Parks, Recreation and Culture, Milwaukee, WI)
- *Spring Flora of Wisconsin, Norman Fasset (University of Wisconsin Press, Madison, WI)
- A Traveler's Guide to Roadside Wildflowers, Shrubs and Trees of the U.S., K. Taylor (Farrow, Strauss & Co., NY)
- Wildflower Guide, Edgar T. Wherry (Doubleday, Garden City, NY)
- *Wildflowers and Weeds, Courtenay & Zimmerman (Van Nostrand, Reinhold, NY 1972)
- Wildflowers and How To Grow Them, Edwin Steffek (Crown Publishers, Inc., NY)
- Wildflowers For Your Garden, Helen Hull (Barrows, NY)
- Wildflowers of the U.S., the Northeastern States (2 Vol.), Harold W. Rickett (McGraw-Hill, NY)
- Wildflowers of Wisconsin, Bulletin (Dept. of Natural Resources, Madison, WI)
- Prairie-Swell & Swale, Torkel Korling (Torkel Korling, Dundee, IL)

*Sold at Wehr Nature Center - Whitnall Park

- Bailey, L. H. 1941. The Standard Cyclopedia of Horticulture. Vol. I-III. Macmillan, N.Y.
- Booth, C. O. 1957. An Encyclopedia of Annual and Biennial Garden Plants. Faber & Faber, London.
- Curtis, J. T. 1959. Vegetation of Wisconsin. University of Wisconsin Press, Madison, Wisconsin.
- Curtis, J. T. 1963. Lecture Notes in Advanced Plant Ecology. (compiled and unpublished)
- Dietz, Marjorie J. 1965. Concise Encyclopedia of Favorite Wild Flowers. Doubleday, Garden City, N.Y.
- Everett, T. H. (Editor). 1960. New Illustrated Encyclopedia of Gardening. Vol. I-XIV. Greyston, N.Y.
- Fernald, M. L. 1950. Gray's Manual of Botany, Eighth Edition. American, N.Y.
- Gleason, H. A. 1963. New Britton and Brown Illustrated Flora of Northeastern U.S. And Adjacent Canada. Lancaster Press, Lancaster, Pa.
- Greene, H. C. and J. T. Curtis. 1950. Germination Studies of Wisconsin Prairie Plants. Amer. Midland Naturalist 43, No. 1, 186-194.
- Greene, H. C. and J. T. Curtis. 1953. The Re-Establishment of an Artificial Prairie in the University of Wisconsin Arboretum. Wild Flower 29:77-78.
- Kelsey, H. P. and W. A. Dayton. 1942. Standardized Plant Names. J. Horace McFarland Co., Harrisburg, Pa.
- Kolaga, W. A. 1966. All About Rock Gardens and Plants. Doubleday, Garden City, N.Y.
- Mahlstede, J. P. and E. S. Haber. 1957. Plant Propagation. Wiley, London.
- Rickett, H. W. 1965. Wild Flowers of the United States, The Northeastern States, Vol. I and II. McGraw Hill, N.Y.
- Robocker, W. C., J. T. Curtis and H. L. Ahlgren. 1953. Some Factors Affecting Emergence and Establishment of Native Grass Seedlings in Wisconsin. Ecology 34:194-199.
- Schramm, P. (Editor). 1970. Proceedings of a Symposium on Prairie and Prairie Restoration. Knox College, Galesburg, Illinois.

BIBLIOGRAPHY (cont.)

- Schulenberg, Raymond. 1967. Notes on the Propagation of Prairie Plants. Morton Arboretum. Compiled for class on prairie plant propagation.
- Steffek, E.F. 1954. Wild Flowers and How to Grow Them. Crown Publishers, Inc., NY
- Swink, F. 1969. Plants of the Chicago Region. Morton Arboretum, Lisle, IL
- Taylor, K.S. and S.F. Hamblin. Handbook of Wild Flower Cultivation. Macmillan, NY
- U.S. Dept. of Agriculture. 1948. Grass. Washington, D.C.: U.S. Government Printing Office
- Weaver, J.E. 1954. North American Prairie. Johnson Publ., Lincoln, Nebraska
- Weaver, J.E. and F.W. Albertson. 1966. Grasslands of the Great Plains, Their Nature and Use. Johnson Publ., Lincoln, Nebraska

"One of the most marvellous sights of my whole life, unsurpassed in my travels in nearly all parts of the world, was that of the prairie in spring. Unfading are memories of that waving rippling sea of lavender when the wild sweet william, a species of Phlox two or three feet in height was in full flower. It stretched away in the distance farther than the eye could reach. As the sea of phlox faded it was succeeded by another marvellous flower bed of nature's planting, and this in turn by others until mid-summer was reached. Then the great coarse perennials belonging to the Compositae dominated and instead of a single mass of color there was a vast garden of purple cone flowers, black-eyed susan's, rosin-weeds, blazing stars, aster, goldenrods, and others Every spring and fall the prairie was covered with water so that the whole country side was a great lake All day long swarms of water birds filled the air, and far in the night their cries sounded overhead. At the first gleam of dawn vast flights of ducks dashed to and fro and great flocks of wild geese sped swiftly across the sky The advent of tile drainage early in the 80's completed the transformation of the prairie into ordinary farm land and brought in many more people. Of course the ducks and geese stopped coming for there was neither water nor food to attract them. Migratory flocks of snipe and plover continued to come for a couple of decades, but their numbers had dwindled to a mere trickle when I left Illinois in 1900. The crayfish and bullfrogs disappeared in a hurry, and the prairie chickens were destroyed by the combined efforts of the plow and the shot gun. I returned to the region several summers during the 90's, but the prairie as such had disappeared, and of course, its characteristic life with it. What a pity that some of it could not have been preserved, so that those born later might enjoy its beauty also. Now it is merely flat unending corn fields, and moderns may look on this article as only the irredescent childish remance of an old man." DR. A.W. HERRE, quoted in Am. Bot. 46, 1940.



**MILWAUKEE COUNTY
DEPT. OF PARKS, RECREATION & CULTURE**

**Wehr Nature Center
Whitnall Park
9701 W. College Ave.
Franklin, WI 53132**

(414) 425-8550

**WEHR
\$1.00**